REHABILITATION RESEARCH MANUAL, PART III

THE TATA AGRICULTURAL & RURAL TRAINING CENTER FOR THE BLIND

I AM IN THE SHADOW OF A CLOUD AND WATCH
THE SUN MOVING ON IN DISTANT FIELDS

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PART III

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FOREWORD

There are many ways in which creatures communicate with each other : through the gestures of their bodies : the sounds they utter : in the language they speak or, by their acts - their behaviour.

Perhaps we should measure all things and relate them to others and to ourselves. Sometimes it is worthwhile designing an experiment to observe behaviour. Language : the verbalization of our feelings, emotions, intellect, is only one channel of communication. Often, those who may be watching, listening, feeling in an effort to comprehend are lost to verbiage. Though one can express oneself in many ways, one should always use a means of communicating with others which is comprehensible.

To start with we found it better to use words sparingly, and instead, to act. We now pursue the language which was lost and retrieve the words.

1st June 1968

INTRODUCTION

2.1 The study of factors affecting the reorientation, training and resettlement of the rural blind, or what may in summation be called REHABILITATION have for the most part been studied at TACEB by methods of observation based on simple empirical experiments undertaken in rural surroundings.

2.2 To rehabilitate human beings is difficult : conditions must be created in which they will learn. The tools, equipment and methods employed have been introduced and changed from time to time to meet modified situations arising out of the behavioural responses of those we have endeavoured to assist. Methods of rehabilitation have been altered according to the needs of the person, the surroundings and the familial social groups and economic setting in which he is to live.

2.3 The work done with the blind at TACEB is essentially a programme of short term therapy lasting over 18 to 24 months. The programme was a venture into a complex field of endeavour

a) to establish methods whereby a blind person could farm and develope techniques and knowhow related to agricultural operations with reference to a variety of crops, growth conditions, poulty, dairy and shop keeping ;

b) to investigate socioeconomic settings and assess to what extent these affect resettlement in a rural environment ;

c) to determine and establish terms of reference on the basis of which further research into systematic follow up studies could be achieved.

2.4 Our programme has hitherto lacked a purposeful sele tion of variables because the variables themselves had to be observed in living situations prior to their meaningful classification.

It is therefore of importance to our work to define terms of reference and provide a set of concepts in which we can express our findings and experience. Often in trying to help others - especially the handicapped, one provides them with an assistance or an inspiration they cannot use and ends up confusing oneself. Psychology, psychotherapy and other disciplines can be used with great effect if one understands their limitations and the relationships with other branches of science. A misuse of technique or an inadequate approach to human behaviour can result in harmful consequences to the individual one is endeavouring to rehabilitate and society at large.

2.5 A major problem in our work has been that the majority of the blind who hail from rural primitive surroundings are illiterate. Their verbal responses to questions is limited. Probing the "forgotten" past is difficult. In their rural families, most of which are racked with poverty and hunger, responses have also been limited due to the deep-set primitive engraven images of their simple repetitive life cycles. Sophisticated questionaires, inventories and approaches through verbal counselling have not been found wholly adequate.

2.6 Studies of a structured nature which are response orientated seem to be the only reliable and valid approach to investigating problems faced by the rural blind. Though we have had an opportunity to implement programmes of observed change in behaviour before and after therapy, we have not had the opportunity to establish control or contrasting therapy groups. The measures adopted by us have been response orientated with personality and sociometric tests to act as attitude, value and perceptive guides. These latter, however, are rather limited and somewhat uncertain measures, as the cultural, religious, language and economic factors which affect the blind are varied.

2.7 Perhaps the lessons we have learnt will have their values even in the most complex of civilised settings. We have had to communicate our words through example and through physical acts of fruition in men's lives : nothing less has been understood or comprehended.

III - 3 OBJECTIVES AND BASIC METHODOLOGY

3.1 Our objectives are to define and formulate concepts and variables within the boundaries of which one may predict control and interpret human behaviour in real life situations. Such definitions and formulations would be of use to us in establishing a logic, a language and a method by which counsellers, teachers or investigators could assist rehabilitating those who may be singly or multiply handicapped.

3.2 The alteration of behaviour by counselling and training depends to a great extent on the manner in which one acquires information. Counselling and training or teaching are a science, a method, a process which programmes and structures investigations intelligently. More investigation, the establishment of relationships, statistical or otherwise is not helpful.

3.3 The counsellor communicates. The teacher transfers information. They are the architects of behavioural change and adjustment. The manner in which information is communicated to others and the manner in which the contents of information were arrived at are vital to the meanings ascribed and significance placed on what is being communicated. The observer, the instruments and tools he employes, the conditions of the experiment (environment) affect the results. The answers one receives depend on the assumptions made and the manner in which questions are asked.

3.4 One could enter into interminable discussions and disputes on the actual meaning of words or actions. What seems "frustration" to one person may look to be "conflict" to another. What may be presumed to be a "brain lesion" by one specialist may turn out to be a surmountable emotional disturbance - a normal occurance to another. Never presume a diagnosis - live it out. Never attach to words and symbols, meanings in terms of themselves nor extend them to areas to which they have no reference.

3.5 A structly quantitative approach is helpful wherever it can be applied meaningfully under controlled conditions. We have, however, not had an opportunity to measure behaviour under such conditions. Our work has moved in a region of open rural society. A blind person has been found, reorientated, counselled, trained, motivated in a sighted milieu and with the family. The social problems of resettlement as also the financial demographic and geographic needs of rehabilitation has been pursued. A pragmatical qualitative approach is the only one which has been found of use.

PSYCHOLOGY AND THE PHYSICAL SCIENCES

4.1 In the logic of mathematics and the application of mathematical logic to physics and technology, when a change in any factor or variable 'x' is found to result in a systematic change in a factor or variable 'y', one says a functional relationship exists between them. 'y' is a function of 'x' or, $y = f(x)$. 'y' is thought to be dependent on 'x'. As 'x' is independently varied, 'y' also varies in a lawful or systematic manner.

4.2 We infer from such relationships that there may be something ordered about the nature of our surroundings and ourselves; that even if one cannot control the conditions or design a perfect experiment in a manner that will result in a wholly determinate functional relationship, one can yet assume the probability of lawful relationships being present.

4.3 When one knows the conditions affecting a behavioural situation and states the PROBABILITY of an event, such a response taking place, one PREDICTS behaviour. One finds that events are distributed so that some are more likely to occur than others. Another way of saying this is that the FREQUENCY of an event is greater or less. When we arrange a set of conditions under which an event has an assigned probability or frequency, we engage in CONTROL.

4.4 Knowing the dependent variables sometimes called "effects" we may INTERPRET them in terms of the independent variables sometimes called "causes" or, vice versa.

4.5 In studying human behaviour, prediction is limited to probabilities. The concept of probability is used in sciences in those areas of investigation where the instruments of observation themselves introduce an UNCERTAINTY. In physics, one finds that energy can be measured as a "wave" or a "particle". The probability (uncertainty) of measuring the properties of the one are inversely proportional to the certainty of measuring the position and properties of the other. Such probability is entirely dependent on the type of instrument used to gather information, the design of the experiment and, the controls adopted. The measurement of psychological variables and quanta such as : scores on interest vs achievement, or, work vs hours of food deprivation, intensity of stimuli vs correct discrimination, are all probable relationships depending entirely on the conditions under which they are measured. It will bear repetition that answers one gets depends on the method used in the investigation and the limitations of the tools one uses.

4.6 Another matter, in consequence, is the realization that the results of an experiment under one set of conditions cannot be necessarily applied to another unless one makes a trial and finds this to be so. One designs an experiment, observes a pattern of events, builds a theory to fit events, extends the theory to see if it does fit other events under like circumstances. This is easier said than done. in a dynamic situation such as training or adjustment or any other individual or societal predicament - the processes involved are irreversible and cannot be repeated. One, therefore, tries to establish parallel controls with which comparisons can be made. One tries to make corrections for practice and cumulative effects which change the course of the behaviour being studied. Whatever one does, however, the more one controls conditions, the less the probability that finding will be usefully applicable to the total behavioural predicament of the individual or the society or the family under observation.

4.7 When studying the behavioural predicament as a whole one must realise that there may be networks and cycles of events : a dependence of relations, an accidental or deliberate association of events in a framework of antecedents. Concepts of simple and single causes are replaced by multiple factors, reciprocal relations and, FEEDBACKS, the progressive recession of causes and the progressive cumulation of effects. One does not only have to "reason things out". Instead one must endeavour to observe and record them "as they are". Since one is thoroughly conditioned to one's own culture and environment how does one go about doing this? "Seeing things as they are" merely begs the question. Can we find a method of observing events while simultaneously observing ourselves ?

FUNCTION AND STRUCTURE

5.1 In order to understand behaviour one does not necessarily have to know how all anatomic, chemical and physiological processes work. Neither is it requisite that all elements in any behavioural situation need to be identified. When one learns how to use a sword, one does not need to be told how to beat out the steel. If one wishes to go from location 'A' to location 'B' one does not necessarily have to know the positions of the muscles in the limbs. Contrarywise, if one is surgically restoring a limb, one does not necessarily have to know how to go from location 'A' to location 'B'.

5.2 On the other hand, the study of functional relationships, i.e. how events are related, how they operate and how they are structured, synthesised or organised has a considerable bearing on behaviour.

5.3 There are a number of possible clues as to the most fitting conceptualisations we should use. The best that can be done to help us in our endeavour is to seek the most plausible.

5.4 We find it convenient to utilise two points of view :

i) FUNCTIONAL relations of quantities, properties, values etc.

ii) STRUCTURAL descriptions of quantities, properties, values etc.

5.5 To measure any EVENT or OCCURRENCE one usually designates large scale properties suggested directly by the perceptions. Where such large scale properties can be quantified or scaled, they provide the coordinates of the events being observed. Such measurements may involve no special assumptions concerning the structure of the events. Relationships between coordinates can usually be functionally (statistically) correlated. Usually it is found that only a few coordinates are used at a time to provide an adequate description. Measurement, therefore, involves the specification of a few fundamental quantities which can be scaled and functionally related to each other.

5.6 The structural or descriptive viewpoint looks at the events and things, in an entirely different and complementary manner. Many quantities need to be specified, the properties, quantities and functions need not always be perceived or experienced nor can all such properties be measured or ranked.

5.7 The relationship of these two points of view, both of which are essential to the study of behaviour, can be better understood if one assumes that a directly measurable and perceivable macroscopic property represents averages or summations of a large number and variation of microscopic properties.

Take for example pressure : one feels it and measures it as kg/cm^2. One can also explain it by the molecular collision theory of gases. You can measure a reflex by the movement of a limb, or you could explain it by a theory of nervous threshholds, relays and reverberating circuits. One picks up a book to read - an observable event : an almost infinitely complex theory of perception can be constructed round this simple occurance. "Pressure", "reflex" and "picking up a book" are measurable macroscopic quantities and events; molecular collisions, reverberating circuits and perceptive mechanisms are not easily measurable or observable and are microscipic, structural or descriptive entities.

DIMENSIONS

6.1 It is important to observe "things", "objects", "perceptions", "illusions" as a process, as though they were events or "part of" a succession of events. Let us make an effort to measure what we can of such processes in terms of dimensions which are meaningful.

6.2 What are dimensions ? Dimensions mean the factors or relationships determining the size - big or small, the value - good or bad, importance - great or insignificant. Dimensions are relative : a man is "big" compared to an ant, "small" compared to an elephant. In describing a person i.e. an event, "n" dimensions may be involved. Size, weight, age, race, nationality, rich, poor, intelligence quotient, professions, married, single, interacting attitudes and roles, meanings, values, likes, dislikes etc.

6.3 Dimensions are factors which measure the relationships between events. A dimension cannot exist on its own and has no meaning except in describing or measuring events which can be related to each other.

6.4 Units used in measuring the properties of matter may be used to measure certain types of physiological and psychological activity e.g. energy, temperature, work, velocity, frequency, time etc. Sensory attributes or behavioural responses can be classified in terms of intensity, frequency, extension or duration. Quality and value, however, cannot be measured in physical units though intensity, frequency, extension and duration can be measured and related to scales constructed out of qualitative or value data wherever the dimensional relationships are meaningful. We all know that judgments, attitudes, meanings etc. vary even in the same individual. Is one able to measure them ? The construction of qualitative scales which can be validly and reliably used under certain constrained and limited circumstances to quantify such attributes can only be an exercise in relative terms. Quite often, it is at this point that psychological "measurement" collapses. It is at this level that the observer's experience and detachment are paramount. The description of a changing behavioural situation makes measurement even more difficult.

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6.5 Behavioural dimensions for our purpose can be classified under 4 major heads :

1) Quantitative : physical dimensions e.g. number of events vs time
2) Qualitative : physical dimensions or sensual dimensions e.g. frequency of an event vs intensity of a sensation
3) Perceptive : sensual dimensions or discriminatory dimensions of value and meaning, motivation and emotion
4) Cognitive : perceptive dimensions of value and meaning or conceptual dimensions of the self and the group e.g. roles and attitudes.

Care needs to be taken in establishing relationships between the above classifications. It would be meaningless for example, to try and experimentally relate a cognitive dimension with a physical one. Behaviour is not merely the measurement of the frequency of responses with time or, the magnitude of responses and stimuli etc., as is found in cyclic habitual operants and reflexes. In "perceiving" a situation, we do not necessarily give significance to what has happened a hundred times innocuously but to what harms or helps us. There can be no one to one relationship between the strength of a "cognitive" factor and the "physical" frequency of an occurance.

6.6 Finally, while determining what dimensions we should use, our approach cannot be limited to a selected population and sample, in terms of age, IQ, caste, demographic location etc.. Such parameters are useful in the field of rehabilitation where statistical comparisons are to be made but no further. A doctor in a hospital learns more of diagnosis if he has a hundred different types of cases than the same ones day after day. Heterogenous groups which yield a wide range of differences in behaviour help one determine the structures and concepts inherent in diversity so as to widen and establish more realistic patterns of diagnosis and rehabilitation. If the sample of the population we are studying is to be reduced in the interests of homogenuity and the establishment of correlate relationships, then such a narrowing of the field of investigation would need to be specified e.g. mental backwardness could be affected by mental abnormality, superstition could affect attitudes towards sympathy or, status could be related to societal acceptance and sanctions etc. In such a case, the sample taken for study should be determined by the requirements of the specific problem to be investigated to help us formulate new relationships which can be used in rehabilitation but for no other reason.

THE OBSERVER

7.1 Someone asks the question "How did your meeting go off?" In reply, if I wanted to record the "event" of "our meeting" I would have to state WHERE the event took place. This would have to be in physical dimensions on the basis of some fixed position "zero", say "the street corner". This zero position need not be the same for all observers, for example those who are stationary and those who move in a direction towards or away from the event. Then again, I have to state WHEN the event took place. This involves a temporal dimension from some fixed point of time. The physical event can be thought of, therefore, in two dimensions : space and time in relation to the observer. Then again, I would have the opportunity to say WHAT "happened." The question WHAT describes events being observed.

a	b	c
degree of interaction in group	frustration with control	riot

The relationship between these events could be scaled to a dimension of say - "orderly-riotous" behaviour in terms of the social or economic setting. The scaling of the dimension in a dynamic and changing situation is naturally very subjective. To begin with, one learns to observe and record one's findings. One can later check them out if possible for reliability and validity.

7.2 Summarising, for a simple succession of events like a meeting on the street·

the question WHERE ? fixes dimensions and coordinates in space orthe social setting in the presence of an observer

WHEN ? fixes dimensions and coordinates temporally in the presence of an observer i.e. what happened first and then second and third, or simultaneously

WHAT ? describes the events of relevance which are thought to bear a functional or probable relationship to each other

HOW ? relates events FUNCTIONALLY through dimensions described by an observer. The relationship can be further amplified by correlating one set of dimensions with another.

Let us not use any signs between events a, b, c, but write them left to right, and assume that this order or succession represents

a) a temporal relationship - what comes before and after. Where events are thought to occur simultaneously, we can group them together e.g. a, bc, occuring together;

b) a probability relationship - it is probable that c is functionally dependent on b and b on a;

c) a structural direction within a larger network of events - a is connected to b and b to c, which may be closed $a \rightleftarrows b$ c or open a - b - c

7.3 Roles and attitudes vary according to the response patterns in which they are found. For example, a blind person may be given help by another member of the group. The investigator observing this relationship would record the blind man's volition (whether or not to accept help), a self-concept (negative : helpless)in a setting of customs, usages and religious beliefs of the community.

What the person felt or understood the relationship expressed above to be, desirable, undesirable, good or bad, would be expressed in a response which would be an involvement or an avoidance response. He may have felt an abuse, a rejection, an affront, an alienation. On the contrary the helper may have felt he had done good. The social setting may be of superstitious charitable works, poverty and institutionalism. This may radically affect the overt choiceor volition of the person. He may accept help outwardly and despise it inwardly. What the relationship meant to the person and another member of the group could be at variance. The responses to meanings and values would have a marked effect on the choice of the person : whether to take or refuse help.

7.4 The OBSERVER would have to weigh his own emotions and see whether they were negative or positive and recognise the fact that these emotions may colour his viewpoint, prior to deciding what he sees as the responses elicited in the person and the members of the group and the setting in which they occured. If this is not done, his view could be biased.

7.5 Quite apart from trying to investigate and observe events, the observer also comes into the picture on another plane of activity. He must formulate meaningful problems which will be of practical use in a human predicament. He asks questions which can be integrated into a structure of concepts which have been found to have practical application

and utility in the rehabilitation of the handicapped. He investigates these questions and produces relationships. He may observe that these relationships may have no relevance to living realities. He questions himself again : does it help to quantify age and relate it to maturity ? Do "interest" scores have any connection with "achievement"? Is apathy dependent on a lack of food ? Are IQ tests related to a uniform type of intelligence or, an ability to solve problems in an inimical social environment ? Does one necessarily have to investigate everything one can measure or evaluate ? Do statistically "significant" differences between any two or three sets of data necessarily mean that these data are meaningful in practical application or in building up the fabric and precept of rehabilitation and adjustment ?

7.6 There is a further problem to reckon with. Covert processes of thought and reflection and the overt responses and reaction are both of ultimate use in the observation and interpretation of behaviour. Both constitute channels of communication, information and mediation. Certain responses and reactions can be observed as motor responses whereas reflections and thoughts need to be communicated verbally. When studying the blind, phantasy life is an almost universal compensatory mechanism for adjustment to blindness. This may give the observer an insight into the realm of covert thoughts and activities. Pleasing words are often the prelude to inimical acts and vice versa. A blind person's emotions and those of his family may be investigated through the use of verbal interviews and group therapy sessions as also through the observation of overt behavioural responses.

7.7 Evaluations of the social group often show a high level of uniformity and can be considered standards of cultural or social judgment or value. The behaviour of individual human beings has, however, a great variety of hidden and covert meanings. The determination of the scope of the meanings and values, attitudes and roles, by framing dimensions in which these can be expressed and measured, is the first step in the determining of the structure of a person's behaviour in relation to his physical and social surroundings.

7.8 Finally, the observer, acting as counsellor or teacher, must create SITUATIONS in which a person has a need to express his feelings and communicate them. He needs to be tactful. The subject must actually feel that he is communicating with a person who understands his needs and trust him. The whole emotional climate which is elicited can be altered if the approach is in anyway rigid or insensitive. The observer continually keeps a watch on himself and searches for the relationships he sees in others, in himself. He must work and get the feel of his own limitations to be

able to emotionally comprehend the world of meanings in another person's life. Self knowledge is essential.

7.9 We have thought in terms of watching events, attitudes, emotions. We have talked about creating situations and then observing them. The investigator takes a middle position between the seer and the seen. He plays a double role. You perceive and then "realise" what is perceived. You feel and then "realise" what you are feeling. The events which affect the subject also affect the emotions of the observer.

7.10 Here are some approaches you can utilise in observing behaviour.

a) Investigate verbal meanings and thoughts : reflective processes, emotions and moods, likes and dislikes

Use verbal response interviews, motor response observation and group therapy sessions with individuals and groups.

b) Investigate intrapersonal individual, group and social responses - i.e. action and reaction, attitudes and roles.

Use case work studies with families and social groups

c) Investigate behaviour reorientation in training and resettlement and response to task situations, individual and group.

Use task sheets and job progress reporting methods.

d) Investigate the establishment of functionally tenable relations between classes of like events.

Use symbols and networks to structurize and differentiate functional relations between classes of like events.

e) Investigate the adjustive changes implied in the structure of groups and individuals for successful rehabilitation.

7.11 The establishment of constructs and concepts which can be used to pattern observations is a fundamental objective. The field of events and a conceptualization of experience help establish a process whereby the activity between the investigator and the events observed is realised. The mutual relationships between a PERSON who elicits emotional situations and MEMBERS OF A GROUP in whom they are elicited and, the asymetry or one sided needs of these relationships are of significance in structurising a behavioural situation. The meanings of the relationship to the GROUP and to the PERSON also form a structure. Finally, the observations of the investigator and his self knowledge set a pattern for what is being seen.

e) Investigate the adjustive changes implied in the structure of groups and individuals for successful rehabilitation.

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BEHAVIOURAL SYSTEMS

8.1 We find it difficult to talk in terms of a "person" and his"behaviour." What is the difference between these two ? It would perhaps be more rewarding to focus our attention on a simpler succession of events such as : the observed response "r" arising out of organism's activity "a" as a probable outcome of a change in the organism's surroundings "s" and, represent this as follows : (s, a, r)

8.2 You will observe that in the above expression, there is no "person". All that we have is a relationship in terms of EVENTS r, a, s, which we assume can be measured, qualified, evaluated.

8.3 The events on which the observer focusses his attention in an effort to establish relationships between them may be termed a SYSTEM. (s, a, r) is a SYSTEM in which events in two independent dimensions "a" and "s" have a probable relationship with a subsequent event "r".

8.4 Wherever possible we should try an isolate or "simplify" what we are looking at by conceptualising it or focussing our attention on certain events and not on others.

8.5 For us BEHAVIOUR is a SYSTEM of EVENTS on which the OBSERVER FOCUSSES HIS ATTENTION. It may or may not be an experiment designed with controlled conditions. Though this approach may in some ways reduce the possibility of being able to determine rigid relationships reliably and validly, the major part of our work depends upon an instrument of measurement we have called the "observer", the "evaluator". Under such circumstances, there seems no way of establishing rigid functional relationships. An observer may see, or measure, or evaluate a response "r" following an activity "a" (a,r) or organismic activity "a" following an alteration in the events in the surroundings (s, a) i.e. a reflex or, a two term or multiple relationship (s, a, r)

8.6 The observer makes a distinction between events which can be termed "responses", events termed "activity", and events termed the "surroundings". Such a division is basically structured or descriptive.

BEHAVIOURAL NETWORKS

9.1 What we observe in any system may in fact be a part of a more complex network. A reflex such as blinking an eye could perhaps be adequately explained by a sample relationship between two events as follows :

(S_u ·	r)
handclap	eye blink

One would by a similar procedure condition the eyeblink as follows.

(S_c	S_u	r)
bell	handclap	eye blink

(S_c	r)

where the bell comes BEFORE the handclap and eventually becomes a CONDITIONED stimulus event.

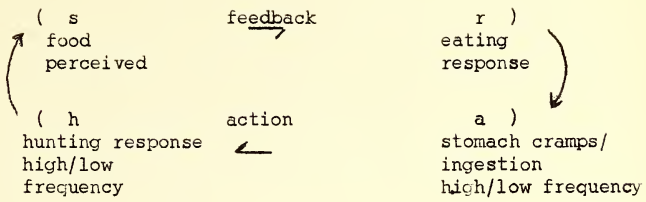
9.2 One would expect an operant such as hunger to be explained by a succession of systems, reading right to left as follows :

(h_2	a_2)	(r	S_r)	(h_1	a_1)
reduced hunting response frequency sleep	ingestion low frequency	eat cramp	food found	hunting responses random movement high frequency	hunger stomach cramp high frequency

One observes the hunger "a" and the hunting responses "h", one observes a reinforcement of the hunting response by the discovery of (and the approach to) food "S_r" and, the eating "r" and subsequent ingestion of food. "a" is the internal stimulus event which CONTROLS the response "h", and "S_r" is the external stimulus event which REINFORCES the response "h". The hunting response becomes CONDITIONED by the REINFORCER event "food found" which occurs AFTER it. The eating response "r" is followed by the passage of time with a recurrence of hunger cramps. The cycle repeats itself. If during the period food is being hunted for, a stimulus event such as the "cry" of a beast being preyed upon is heard, this will act as a control stimulus S_d associated with S_r food.

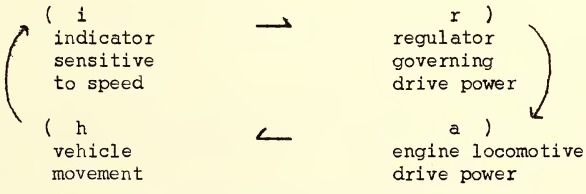
We have taken the example of hunting behaviour but could equally well have illustrated control stimulus reinforcal by the breakfast, lunch, dinner sequence where food is provided at regular intervals. In such a case, the control stimulus event could be the "time in the clock" or the "bell" which tells on "food is available".

9.3 Let us twist the sequence of systems in the hunger cycle back upon themselves and construct a MODEL or STRUCTURE of the process - an arrow indicating movement within a network direction.



We have two systems - the hunting response system and the eating response system, paired 'vertically'. We have a fluctuation in the prequency of physiological activity 'a' between periods when ingestion takes place and thereafter with a concommitant change in frequency of hunting behaviour 'h'. We observe a continuing operant response under the control of a perceived stimulus. The magnitude of the direct action is controlled by a "loop" or a "feedback" which results in a response 'r' which in turn "regulates" activity 'a'. We are not presuming anything - only drawing a picture which places events in a cycle : we are constructing a model as a child would. We may even be postulating events where there are none observable.

9.4 Consider another illustration of two paired systems which may prove to be an excellent model - that of a locomotive running on a fixed track.



This pairing can also be represented

$$\begin{matrix} (r - i) & (r - i) & (r - i) \\ (h - a) & (h - a) & (h - a) \end{matrix} \qquad \begin{matrix} \text{System 1} \\ \text{System 2} \end{matrix}$$

If the observer was only capable of concentrating or focussing his attention on h $\swarrow$ a, he would miss i $\searrow$ r. What seems to be a disjointed erratic activity may in fact be a continuing rythmical operant. System 2 may be subliminal resulting in an observer being unaware of a covert or latent process. A so-called reflex may only show when threshholds in 2 are broken.

9.5 Though one often observes behaviour as discrete occurrences such as reflexes it were better to think of all behaviour as a continuum. This helps us keep an open mind on possible missing links. The activity of an organism never stops from the day it starts breathing to the day it falls to pieces. Frequencies, cycles, rhythms, continue throughout the period of life. The threshholds of activity within the organism, or the person, its sensitivity to outer stimuli events - the frequency of the response and the period over which observations are made, often change the dimensions from those discrete responses to operant responses of varying frequencies and intensities. I might smoke a cigarette once a day and an observer who had an opportunity of watching me for only one day might think it a "reflex". But I smoke the cigarette regularly every day and when emotionally tense ten cigarettes are smoked within the hour. This behaviour under extended temporal observation is perhaps an operant negatively reinforced by emotion and not a reflex. If the observer had the good fortune to expect this contingency or asked the reasons I was smoking, I would have enlightened him - if not, he would remain in the dark.

9.6 The responses, the stimuli from the surroundings, the perceived environment, the person, his emotions are a continuum and one should think of a continuum of parallel systems and cycles the one reacting with the other, conditioning each other in either simultaneous pairing or reinforcement schedules. Habits, character, traits, lying, reading, poetry, stealing, drinking, phantasy, aggressiveness, persistence, friendliness may all be behavioural operants, cycles and feedbacks in a continuum. Such cycles have a high probability of recurrence if reinforcement is present and a low probability of recurrence or even extincti if reinforcement is not adequately present.

9.7 Let us piece together systems in a different manner. By linking systems in series and parallel, one can on a "piece of paper" represent two dimensions at right angles or a cross current behavioural system.

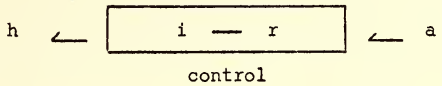
System 1	$r_1 - a_1 s_1$	$r_1 - a_1 s_1$
System 2	$r_2 - a_2 s_2$	
System 3	$r_3 - a_3 s_3$	$r_3 - a_3 s_3$
System 4	$r_4 - a_4 s_4$	
	$r_5 - a_5 s_5$	$r_5 - a_5 s_5$

One can "see" a succession of $r_1\ r_3\ r_5$ etc. or $(s_1\ r_3)\ (s_1 r_4)$ or $(a_5 s_5 r_1)$ etc. One can see anything one wants to see., if one leaves out what one does not want to see or cannot see !

The discriminatory control and reinforcement event sequences are of significance. The final measured responses and the surroundings mean little if the mediating control and reinforcement is not apperceived. Once one thinks in terms of control events and reinforcement events, the whole question of measuring a continuum of behaviour in terms of isolate reflexes or repetitive operants may be misleading.

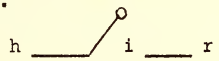
A CYBERNETIC MODEL

10.1 The magnitude of the direct energy of the locomotive being run by the engine in the example quoted in the previous chapter is much greater than that of the feedback through SENSITIVE INDICATOR and a REGULATOR. Another way of looking at this is that 'h' the'movement of the engine' communicates with 'a', 'the drive of the engine' through a box.

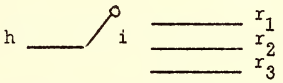


The indicator and regulator stimuli consist of negligible quanta of energy when compared with the primary path

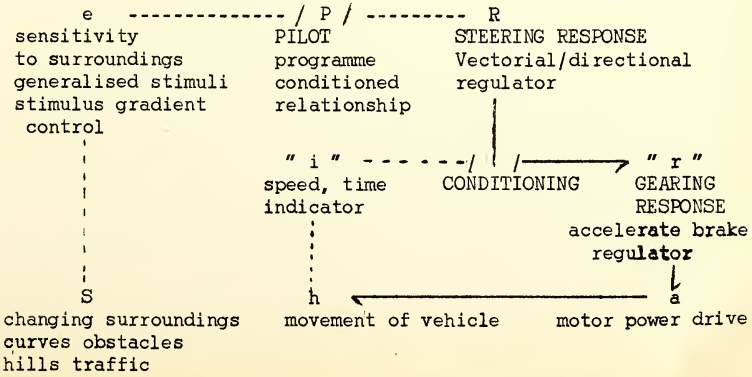
We say 'h' communicates with 'a' through a modified/modulated CONTROL SYSTEM. The simplest case is an "all or nothing" control involving an interruptor.



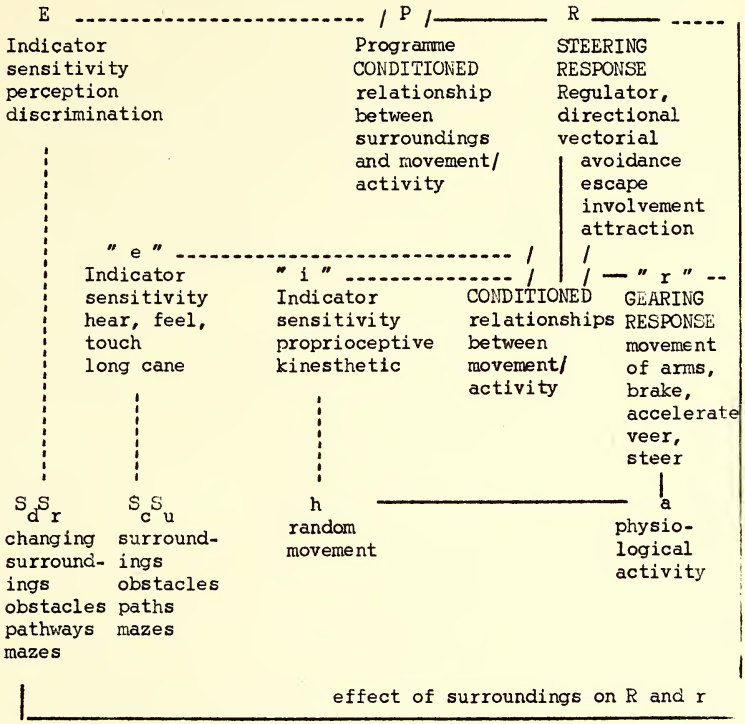
A little more complicated is commutation or selection which enable 'r' to take several distinct forms



10.2 We go one step further in our model building - assuming we compare a blind person learning mobility to a driver learning driving. The following network would indicate the functional relationships which would control his behaviour.



10.2 Let us draw up and amplify the network for a blind person learning mobility.



As an observer or experimentor, we have now a number of events to play with. a h i r, $S_d S_r E$ R r etc.

10.3 If we use a network, structured relationships emerge which could not immediately have been pictured in any other way. A blind man bumps into a tree S and feels this event e. He turns away r and moves in another direction. He has hurt himself and feels an internal pain i. He moves randomly to begin with h, distracted by the pain. As the pain subsides, he gains control of his movements h, i, r. A memory of this event seems to remain with him - it becomes palimpset on his behaviour - a cyclic periodicity appears when reinforced - r $S_r E$ R. He learns to avoid trees by learning to discriminate or perceive he is close to one by hearing its presence. You will see there is a real difference between the functional and the structural approaches to any problem. The first measures S and calls it an independent variable or "cause" and measures

'r' and calls it a dependent variable or 'effect'. In a description where a network of events, so to speak, are meshed together, single causes and effects have no place. Temporal relationships stand modified - a number of simultaneous processes may be taking place. Above all, there is a radical difference between what the observer calls the surroundings, and the environment E which is perceived. The proprioceptive sense i, exteroceptive senses e, are sensations conditioned into what we call 'perception' E by a cycle of reinforcing events as illustrated in the model.

10.4 A number of structural schema could be developed to pattern and conceptualise what one supposes may be occurring. TIME comes into the picture. One event is said to depend upon or follow the other. "Loops" or "cycles" can be seen as circuits. The repetition of SPATIAL PATHS results in TEMPORAL paths or PERIODS. The temporal period reduced to its simplest form is a "clock". Time is the space between events. Temporal networks of a less rudimentary kind than simple repetitive "clocks" are termed PROCESSES. As against a static repetition there is a change. Repetitive routine can show itself as a habit or as memory : the presence or repetition of what has gone past. Where a process is totally repetitive, it can be completely deterministic : what happened in the past will recur in the future. That is how clocks work. We often notice, however that the rate of change is sometimes unchanging. A body falls freely and there is a change in position as well as motion. Yet we find a constancy in the rate of change of speed i.e. acceleration. A person's behaviour also changes from moment to moment. Yet we can speak of habits or traits. We see dynamic processes which can be expressed statically. The pattern of daily life, habits, traits, fixations are a form of memory or inertia. This could also be one of the mechanisms whereby the continually changing sense impressions are stabilised in the uniformity of perception.

III - 10.A ORGANIZATION AND REORGANIZATION

10.A.1 The word "adjustment" is sometimes used to express a change in conditions affecting a person or a group resulting in a change in the values, attitudes, roles. It is also sometimes used to describe physical well being, ability to travel, social harmonising etc. All these usages of the word are significant when used in their proper context but for our work with the blind, it is felt we should think of adjustment as ORGANIZATION of events or dimensions without giving it any other societal value. This helps in eradicating any preconceptions we may have as to whether a person is adjusted or not in terms of value judgements. INSANITY is an adjustment of the physiological activity of the person to extreme and continuous stress. Rehabilitation is the adjustment of the person to a reduction of stress changes in the surroundings - a REORGANIZATION.

10.A.2 Any rudimentary organism can be considered schematically to be a network or ORGANIZATION of feedbacks, sensitivity loops, conditioning systems and periodic (repetitive) time processes. If I wish to lift my cup from the table, it seems I have given an order to my muscles in the same way as I would pull the levers on a puppet. The body operates on a programme. The responses seem to be under continuous control, the eye watching the hand controlling the muscles. The information from the eye may be said to activate other "senses", and internal proprioceptive organs which inform the brain of the actual movement of the muscle. "Goal" seeking of this kind arises out of feedback control. When considering a pathological condition which is analogous to a lack of control or rythmical fits, oscillatory behaviour is observed. Hysterical or emotional syndromes illustrate such behaviour. Try to carry a plate full of water without spilling it. Your muscles react too jerkily. It is a matter of controlling the control system. What we see in the human or animal nervous system is not merely a series of control loops but conditioned hierachies. Experimental transactions

...2

of any person's nervous system at different levels e.g. spinal cord, medulla, cerebellum, has revealed a broadly hierarchic arrangement of circuits controlling one another. The discovery of group interaction potentials has further confirmed the importance of structural networks of action and reaction in societal and group settings as well.

10.A.3 It seems established that after some kind of disturbance or lesion, a behavioural system is able to recast its internal organisation and preserve itself against change. The connections between networks may be adjustible. This type of adjustibility is also found among social group structures. The question is : how do we control the control system in rehabilitation of the blind and their families. How do we recast patterns ? What types of changes and break-throughs must we fashion ?

10.A.4 Any kind of disruption is a network involves a change of organisation. All phenomenon of disruption e.g. breaking of an emotional balance, snapping family relationship, disorganisation of physiological processes, a race riot, can be studied in terms of the events immediately proceeding them. If the change is rapid and of an amplifying, uncontrolled chain reaction type, it can result in rupture such as distruction of communication, breakdown of resistance, rising concentration of emotions, saturation of nervous energy, pathological lesions etc. But strangely, it has also been observed that all these occurences reach some kind of equilibrium. Once disorganised, the network tends to stabilise itself anew. If changes continue to be imposed, rupture and disorganisation may continue to take place leading to new states of equillibrium.

10.A.5 Networks of systems in an organism or a society show a considerable inertia or resistance to rupture when they are in a state of equilibrium. Hysteria, insanity, psychosis and neuroses are such breakdown states of equillibrium.

It is as difficult to get a sane man to go insane as an insane man to be restored to sanity. If pathological changes have occured, the reverse process may be impossible.

10.A.6 The tendency towards a stable organisation is suggestive of the process of adaptation to an environment. A blind person adapts himself to his environment and organises himself with a view to his own survival. The parents, siblings, in a blind man's family also adapt themselves to their "misfortunes". On a much more primitive plane, if we observe certain critical variables such as blood pressure, breadth composition, water in tissues, we find these to be held at values which are strictly determined. The organism or society responds to modifications of the environment in such a way that its reaction is directed towards an equillibrium. This is what some people have called homeostasis. As a person or a group or a society is a set of collective processes of definite form and extent, they can continue to exist only as long as they are in a constant state of equilli-

brium with forces external to them. For example, adaptation modifies the structure of a person according to the indications of successes or failures he receives. The person is informed of the result of action taken and functioning is altered in consequence.

A MODEL FOR OUR USE

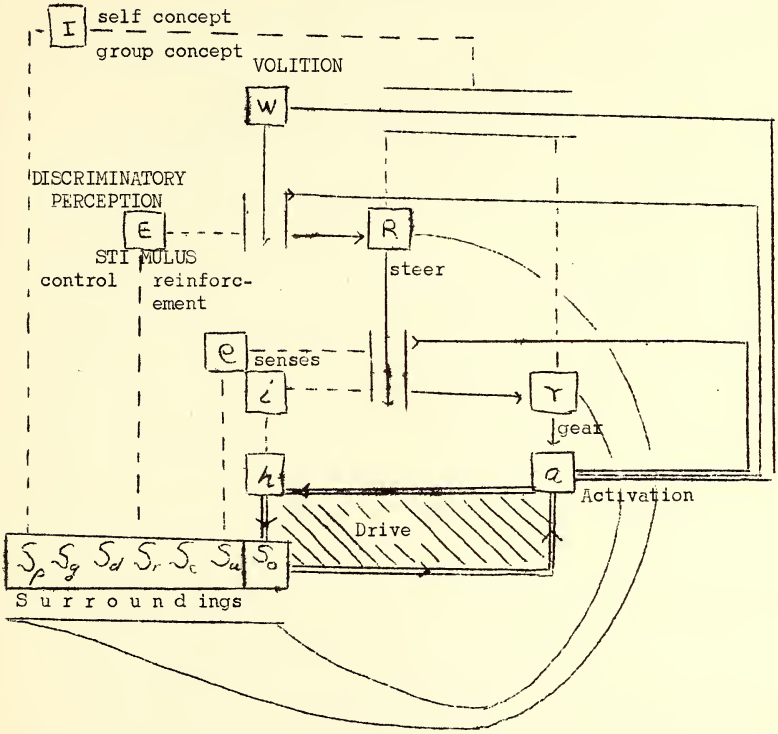
11.1 The functional models and networks we have been using are like robots - boxes or machines, where something goes in and something comes out and what is inside is only relevant to the extent of relating output to input. It is the structural model of the robot that emphasises the contents of what goes on inside. A good structural model typically has greater predictive power than a functional one, inasmuch as it can predict changes in the frequency of behaviour of one type or another when the geometry of the structural relationships is varied.

11.2 If the robot is opened up, empirical verifications can turn a functional model into a structural model so that its components link up with the way it behaves. Although the description of behaviour functionally is very useful in determining major relationships, its description in terms of structure is extremely useful in reinforcing the functional approach.

11.3 The model or the robot is no use to us except as a guide - a method, a picture to assist us, in delving into the behaviour of men. Our methods are crude and simple. Our limitations many. In our work we therefore, must use all the intuition and living insight possible to postulate trial configurations which would structure our observations and define our concepts for rehabilitation. We must learn how to mimic real situations and apply them to the learning, training and social adjustment processes which we observe. Judgement and intuition must be used at every stage to guide us even if we have to use models or other tools in the search for meaningful solutions.

11.4 Given below is a model indicating a possible behavioural structure to relationships which could be used in our work with rural blind individuals and their sighted family and community groups. It is not possible to "compute results" from such a model because, as will be discussed later, behaviour which involves the surroundings and responses of an individual to its environment is an extremely complex structure requiring considerable experience and emotional maturity to synthesise. The model is a guide to investigation. Only the main broad divisions of behavioural structure are presented. As our work and investigations proceed, we may find our ideas having to change and the model modified.

MODEL OF CYCLIC BEHAVIOURAL MECHANISMS FOR USE AS A GUIDE IN THE ALTERATION AND ADJUSTMENT OF BEHAVIOUR IN THE REHABILITATION OF THE RURAL BLIND AND THEIR FAMILIES



Emotion :
conditioning of
the senses ie and perceptionsEI
by the Activation syndrome a.

Area of feedback through the perceptions and the senses

Area of activation and arousal

Area of responses reinforced by surroundings

THE MODEL OF BEHAVIOURAL PROCESSES AND MECHANISMS

12.1 The model of behaviour drawn out on the earlier page pictorially depicts the events which may be observed by the investigator, experimentor or counsellor. The model will assist in

a) classifying events being observed;
b) describing dimensions which represent systems & cycles;
c) evaluating relationships;
d) altering behaviour by changing or controlling key or critical, response, perceptive or surrounding events in sequence.

12.2 The model does not restrict itself to overt measurable action and interaction only. The selfsame paths, cycles and feedbacks could be used to elucidate dimensions representing covert reflective processes, moods, attitudes, meanings, feelings, thoughts etc.

As the structure of the model is cyclic, it is well-nigh impossible to determine what came first "the hen or the egg". What came first depends on where on starts. Similarly what one sees happening may beonly part of a much more complex network of what might be happening. The model ess ntially represents a process. The process is cyclic but not reversible.

12.3 Care must be exercised to determine what exactly one is looking at and looking for.

12.4 The model classifies events as follows to assist the investigator in determining on what he must focus his attenti , when studying dimensions or relations between events.

OBSERVED EVENTS IN THE SURROUNDINGS

S_o the physiological organism, homeostatic processes, pathological states

S_u unconditioned stimuli events : the physical surroundings air, light, water, day, night etc.

S_c conditioned stimuli events, conditioned by pairing with S_u : airconditioning, artificial light, cocacola, time shifts

S_r reinforcement events, reinforcing involuntarily by closely following responses r R : reward and punishment

S_d discriminatory stimuli events conditioned by being paired with reinforcement events S_r in the presence of involuntary responses rR

S_g group events reinforcing involuntary responses rR : sympathy

S_p conditioned personal events, conditioned by pairing with S_g contagious

EVENTS OBSERVED TO HAVE BEEN SENSED OR PERCEIVED : THE ENVIRONMENT

i feeling, proprioceptive sense element : internal environment

e visual exteroceptive sense element : external environment

E perceptive element, sensing a discriminatory environment, perceptions : meanings and values

A distinction exists in what is perceived and what is observed.

E+ perception of positive reinforcement or removal of negative reinforcement : reward

E- perception of negative reinforcement : removal of positive reinforcement : punishment

+E perception of positive, attractive control events

-E perception of negative aversive control events

I cognitive element sensing of self or the group, environment of attitude and role.

A distinction exists in what one perceives : one is "a very important guy" +I and what is observed : one is "a third rate bank clerk" S_p. The self concept does not necessarily "tally" with the observed surroundings.

+I positive self concept or positive personal relation with group $S_p S_g$

-I negative self concept or negative personal relation with group $S_p S_g$

A distinction is also made in what group perceives with sympathy I+ and what is observed i.e. antagonism or lip sympathy I-. The group concept need not necessarily tally with its observed behaviour.

I+ positive group concept attitudes and roles resultant on positive reinforcement or sympathy.

I- negative group concept attitudes and roles resultant on negative reinforcement or lack of sympathy.

COVERT OR OVERT REGULATORY RESPONSES

a the energising, activation/arousal syndrome

h the hunting response - erratic or random motor or mental activity

r the involuntary response - regulatory element mental, emotive or motor activity regulating "a"

R involuntary response - regulatory element mental, emotive or motor activity regulating and steering r.

R+ involvement, attraction

R- avoidance, escape

W voluntary response - volition - regulatory element mental, emotive or motor, regulating and controlling R, r. This may be + or - or neutral.

Note it is postulated that volition is the direct expression of activation or arousal conditioned by the responses R, r and the self concept or group concept I.

CYCLIC BEHAVIOUR

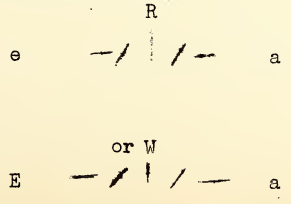
13.1 Behaviour is a network of processes which could be picturised in the form of cycles. If one is to interpret and control and predict the evolution of behaviour, one must focus one's attention first on one and then another cycle to determin which cycle is playing a predominant role in the behaviour bein observed. Simultaneously one classifies events under the heads indicated in the model i.e. S_u S_o E I etc. (or any others which experience may dictate to be useful) and relates classified events in the form of systems or cycles.

13.2 The fundamental cycles are those whose repetition when severely interefered will result in a reorganisation of behaviour. Conversely behaviour may be altered by changing events in any cycle. Each of these cycles may reinforce or condition others :

S_o a h S_u	the survival or organismic cycle -"the drive cycle" or "growth cycle".
a h i r	the proprioceptive or internal environmental regulatory cycle - "the gear cycle"
S_c i e r	the exteroceptive or external environmental cycle
r S_r E R	the reinforcement "steering cycle" evolving out of the gear cycle
S E R S d r	the discriminatory "steering cycle"
a W R r	the emotive volitionary cycle
S_p S_g I W R	the socio emotive discriminatory group cycle
S_g S_p I W R	the socio emotive reinforcement personal cycle

A number of other cycles could be built up out of the model. Ea one would represent a unique state which would be applied to a behavioural predicament.

13.3 Of greatest significance to all the cycles is the CONDITIONING of the senses and the perceptions by the activation syndromes "a" in the drive cycle. This has been represented by a feedback from "a" meeting the incoming senses and perceptions controlled by the responses.



This conditioning has been called motivation or emotion depending on whether it accelerates or decelerates or deflects the cycle.

13.4 Instead of one classified set of events conditioning others, one may now think in terms of one cycle conditioning a second, both conditioning a third etc. A number of cycles may run simultaneously and one could think in terms of parallel series and cross currents of behaviour. One could get lost in an ocean of events unless one learns to focus one's attention on first one and then another system or cycle. There is absolutely no preset pattern. Each individual S_p, the group S_g and other surroundings which influence "his" or "their" behaviour is an unique behaviour predicament.

13.5 A response may be a steering response R. The person may or may not be aware of the response. When learning to drive I am not aware of a number of events which help me steer, accelerate, brake, gear, stall. Once I have driven for a year all such responses become automatic. I can in fact drive without being aware of what has happened right along the route if I were thinking of something else. A discriminatory cycle r S_r E R eventually evolves into a reflex cycle S_c ei r. So also a conditioned cycle S_c ei r can evolve into a discriminatory cycle in the course of learning.

13.6 Look at the model in another way. The model is divided into 4 main areas :

a) the surroundings $S_u S_c S_d S_r S_p S_g$

b) the perceptions i e E I

c) the responses W R r h
and the arousal and activation syndromes a

d) the organismic drives S_o a h S_u

Efforts may be made to shape behaviour by changing the events in any of the above mentioned areas in a stepwise process by differential reinforcement and successive approximation. This process is often known as **TRAINING.**

A BRIEF EXPLANATION OF SOME OF THE FEATURES OF THE MODEL

14.A The organism S_o and Surroundings S_u

14.A.1 Though it is not necessary to know all the elements of the physiology and anatomy of the human body to understand behaviour it is essential the main mechanisms of the organism which control and equilibrate its activity be described in brief.

i) Striated muscles control the movement of the skeletal frame which operates on the external environment

ii) Smooth muscles control the movement of the internal organs and blood vessels

iii) Glands secrete fluids into ducts or, directly into the blood stream

iv) The nervous system : sensitive elements organised receptors, adjustors, effectors, autonomic and somatic networks, central and cortical hierarchies of networks.

When all these elements act in a coordinated equilibrium a growth and decay relationship is said to exist.

14.A.2 It is obvious that any organism cannot survive if separated from its surroundings S_u. It must breathe, ingest, secrete, eat, preserve itself in danger, in effect survive. To do this it must sense its surroundings through the sense organs or indicators (receptors, adjustors, effectors). As the surroundings are in a continuous state of flux and change the senses are adjusted and coordinated to provide a uniformity of perception. Stimulus gradient and generalization conditioning are one of the ways in which this uniformity may be said to be achieved.

14.B The organisms drive and regulatory cycles: $S_u S_o$ a h and a h i r

14.B.1 We normally think of survival in terms of death of the organism - this is an extreme case. Normally the behavioural system will tend to maintain an equilibrium i.e.:act in a manner to avoid disorganisation and breakdown. A behavioural system is irreversible - one cannot turn it backwards or repeat it. On the other hand behaviour is a cyclic phenomenon a "loop" or "mesh". It is this cycle of habitual or involuntary activity which gives the system its great stability and resistance to stress and the tension of change. When the rythm of cyclic activity the frequency and probability of the behaviour occurring is interfered with by an outer or inner stimuli events COMPENSATORY mechanisms setting a new pattern of networks may result. The cyclic behaviour of fundamental importance is that

which keeps an organism in equilibrium with its surroundings $S_u S_o$ a h. "a" is a physiological activity regulating and alterir growth and drive within the organism and "h" is the hunting response, the survival response - an animal ranging through the forest in search of food or a mate. "h" is an erratic random unconditioned responses controlled by a feedback through the movement of the body and the regulatory response r. We make a distinction between the drive and hunt the response which regulates the drive.

14.C The Sensual cycle

14.C.1 i) S_ua or S_uh or S_ur Unconditioned reflex cycle

ii) $S_c S_u$a or $S_c S_u$h or $S_c S_u$r Conditioning (S_c before S_u) cycle

iii) S_ca or S_ch or S_cr Conditioned reflex cycle

14.C.2 If S_u is not paired with S_c, on occasion, the response dies out or is extinguished. A stimulus can elicit a, or h, or r depending on what is being observed and what is, in fact, observable. It could be the classic case of Pavlov's dog salivating "a" at the sound of a bell S_c. A man running helter-skelter h on a cloud burst S_u: a person seeking cover from rain r under a tress S_c.

14.C.3 The pairing of external stimuli $S_c S_u$ results in LEARN to salivate when the bell goes. The cyclic operant r, e i, h, a results in a memory - which "rings a bell" every time one salivates.

14.C.4 When the bell goes it need not be "consciously" heard All that needs to be assumed is that there is a sensing mechani to register the external stimulus. As long as the sensing mechanism is not blocked or interfered with by an attraction of attention or an emotion, the stimulus registers. Conditioning of the type mentioned is therefore a two term contingency in which unconditioned stimuli events are paired with neutral stimuli S_c events resulting in a response r or an activity a.

14.C.5 One of the most important applications of this system is learning of sensual impressions which will help replace visual stimuli sensed by other senses. Perception is an organisation of the senses. One sense is paired or is reinforced with another and events are perceived according to similarity, proximity, symmetry. Perception links and differentiates, and structurises surroundings within conditioned perspectives. When a child is vorn it cannot see. The visual sense is not conditioned to the

world around it nor coordinated with the other senses. Slowly visual perception : the main sensory device to "see things" in outward space, coordinates the majority of the other senses. Distance, time, direction, position connections in auditory and kinesthetic space are conditioned through visual space.

14.C.6 On going blind or blind/deaf , or losing a sense the surroundings are paired with neutral stimuli impressions anew. A fresh sensual vocabulary is created. Water was poured over deaf blind, Hellen Keller's hands and a sign touched within her palm

S_c	S_u	-	e
sign	water		water sensation
	S_c	-	e

Surroundings perceived which have been conditioned by pairing are further recognised and identified by reinforcement. They take on the character of control stimuli. These are the stimuli "noticed" and form the apperceived environment E.

14.C.7 To a sighted man the pairing of systems may result in the learning of a language :

<u>system 1</u>

word		sense
sound		see
square		square
S_c	S_u	e

<u>system 2</u>

S_ϵ	e	r
word	visualise	draw a
sound	square	picture of
square		a square

To a blind person the pairing of systems may result in the learning of a language :

<u>system 1</u>

feel bell	bell sound	sense, hear bell	
S_c	S_u	e	
<u>system 2</u>	S_c	e	r
	feel bell	imagine bell sound	verbalise

14.C.8 You will notice a rather important assumption we are making in our model - Mental events (imagery) are not distinguished from sense events (objects), when one is speaking of perception or sensual experience. The same situation arises with emotive events (feelings). The coincidence and pairing of systems results in a conditioning of reality. Processes become real and are the concrete stuff of existence and not "things".

14.C.9 Reconsider the two pair systems resulting in the learning of language

$$(S_cS_u - e) \quad (S_cS_u - e) \quad \text{system 1}$$
$$(S_ce - r) \quad (S_ce - r) \quad \text{system 2}$$

The paired systems 1 and 2 illustrate an internal conditioning in which the processes of sensing are paired with those of visualization. The unconditioned stimulus need not be present after the first few cycles. System 2 can go off on its own reinforcing itself by its own mechanisms of verbalization. We live in an apperceived world, reinforced and controlled by a cyclic operant behaviour. The primary stimulus event S_c starts off the cycle and is reinforced by S_r events and responses classed as picturasation, verbalisation, structurisation - anthropomorphisation. The process once started and reinforced by the pairing of systems is difficult to stay.

14.C.10 The ability to recall is a conditioned visualising or verbalising cycle in the presence of control stimuli events or responses called "language". Recall is possibly a complex of reverberatory networks of events which "fade with time". The visualised image where left unrecalled over time is forgotten. This is to be distinguished from the extinction of a cycle occuring due to non-reinforcement or non-apiring with unconditioned stimuli.

14.C.11 Language itself becomes a fixed part of the extended perceived environment of meaning and reality. We rarely see our surroundings as we would were we children. The surroundings we visualise and have meaning for us (E) fill our field of perception rather than those we see (e). So also with the rest of our senses which are conditioned by what is visualised and sensualised E. These systems are of great significance in understanding of sensory deprivation of blindness.

14.D Reinforcement and Control S_dS_rE or, S_rS_dE

14.D.1 Return to the hunger cycle.

reduced work	reduced need	satiation	reward	hard work	hard need
h	a	r	S_r	h	a
low frequency hunting behaviour	low frequency stomach cramp	eat	food	high frequency hunting behaviour	high frequency stomach cramp

S_r is the reinforcement, "a" the unconditioned activity resulting in a need and "h" the conditioned hunting behaviour.

14.D.2 Now people can be fed at fixed intervals, in which case, hunting behaviour is not observed. If food is hunted for the reinforcement schedule would be variable intermittant. On a fixed interval reinforcement the frequency of the work response quickly peters out. On a variable interval schedule the rate of work response is uniform and of an average steady rate. On a fixed ratio schedule and variable ratio schedule the work response is uniformly high rate. Where a number of possible stimuli events in the surroundings occur at the time reinforcement is being presented such stimuli which are experienced in the presence of stronger reinforcement will gain predominance S_d and act as control or discriminatory events.

14.D.3 Whilst working to rehabilitate and adjust an individual the constellation of events arising out of the reinforcement of certain types of responses and the non reinforcement of others in the presence of social situations leads to such situations becoming discriminatory. The person's responses r become an integral part of his environment E. The environment can become one of deprivation - E or aversion, attraction +E, escape R-, or attraction R+. In training reward E+ with positive reinforcement is achieved when correct responses are forthcoming and E- with negative reinforcement when incorrect responses were made. The responses R are conditioned to E+ and E- events (reward and punishment) or -E and +E (aversive and pleasurable stimuli). Behaviour can be SHAPED by successive approximations and differential reinforcements, by encouragement, by discouragement, by example, by imitation and by establishing goals and needs. This process must however, be a gradual one because the relationship between R and r is a conditioned one and conditioning can only take place gradually.

14.D.4 Reward, encouragement, praise, knowledge of results given on variable ratios and, cash payment on a fixed ratio tend to result a higher rate of learning than fixed interval schedules. Instead of rewards always being present WORK itself becomes the control stimulus.

14.E The person S_p, the group S_g

14.E.1 Whilst most animal species can survive through long periods of isolated activity, human beings require long periods of nuture and family support and have evolved a high degree of interaction amongst individuals. Since the environment of most human beings contains other human beings and since they interact with each other, behavioural sciences must include the study of such interaction in the setting of culture or religion, ethnic class, sex units, organisational polarities, coteries. The most important of these settings is the family group.

14.E.2 To change behaviour, one must therefore study the structure, reciprocal relationships and interaction between the person S_p and the family group or member S_g.

14.E.3 The behaviour of a person in a group depends upon many factors such as the size of the group, the character of the person, competition, sympathetic interaction, contagious interaction, and a consideration of the group as rewarding or reinforcing environment which makes it effective, attractive, persuasive, permissive and coersive. Group enforcement occurs through group values and attitudes such as conformity, status esteem, ability and influence. Group conflicts arise when status and esteem are incongruent or when other incompatible factors appear at variance with each other.

14.E.4 To determine the personal and social problems of the physically handicapped we need to distinguish

i) the handicapped person S_p

ii) the people around him S_g

The task is to determine the relationship between the handicapped blind person and sighted. This can be thought of in terms of the handicapped S_p and the helper S_g, the looked upon/the onlooker S_g, the dependent S_p and the indepenaent S_g, the rejected S_p and the one who rejects S_g, the pitied S_p and the one who pities S_g, the fortunate S_p and the unfortunate S_p, fortune +E and misfortune -E, normal S_g, and abnormal S_p, those who have been touched by fate S_p and those who have free choice S_g, those who are adjusted S_g and unadjusted S_p.

14. F. Contagion and Sympathy

14.F.1 The structure and function of the majority of group/person relationships can be thought of in terms of two types of mechanisms

i) Contagion
ii) Sympathy

14.F.2 i) Contagion seems to consist of a communication - a direct horizontal effect of one set of events on another. One person communicates an intention or a mode of behaviour to others. The behaviour suddenly and somewhat inexplicably spreads - like a fire. It is presumed that the material in which a fire spreads is combustible or receptive to contagion. Otherwise the spread would be checked. Often the initiator of a race riot merely lights his own flame of anger which then spreads. Contagion may be defined as a situation in which the behaviour of the person S_p brings in its wake similar behaviour in the group S_g the behaviour of those susceptible to contagion being similar to the initiator. The attempt to influence may be deliberate or not so. Whether or not the system $S_p S_g$ R is "contagious" often depends on whether the S_p is viewed as a status leader or not. The position in the group of the person seems to be critical to his role in releasing a contagious reaction. The study of the group relevant relationship can also be conceptualised as a conditioning of the group by the person

$$\begin{matrix} & S_p & - & I \\ S_g & S_p & - & I \\ & S_g & - & I \end{matrix}$$

or alternatively a conditioning of the person by the group

$$\begin{matrix} S_p & S_g & - & I \\ & S_p & - & I \end{matrix}$$

Contagion is therefore a pairing of stimuli events $S_p S_g$ by communication in the continuum of the group. It could be thought of as a recurrent conditioned chain reaction in which events are personal and group behaviour attitudes and roles.

14.F.3 Susceptibility to contagious initiation (stimuli) is more easily discernible where conflict or frustration due to forbidden action or avoidance and escape behaviour or the aspirations of a group or community gives the group a common disequilibrium. Where initiating behaviour of a person helps overcome frustration, conflict, avoidance and escape and restore equilibrium the group would naturally follow such behaviour.

Keeping the above mechanism in mind the problems of personal behaviour in terms of the group dynamics and group therapy and the treatment of behaviour disorders can be observed and wherever possible controlled in the rehabilitation of the blind.

14.F.4 ii) When we talk about sympathy it is not to be confused with compassion or pity. Like contagion it is a process. It is brought about by an interaction between the person and the group in which the responses of the group reinforce (sympathetic action) or do not reinforce (unsympathetic action) the responses of the person. The relationship could be reversed - the person reinforcing the group.

14.F.5 For example the group usually sets aside its own needs and feelings in favour of those who are suffering. If the person feels his needs and emotions are given predominance (reinforced) he will assume that the group or a member of the group is sympathetic. By the very nature of group interaction members can have a sympathetic, a neutral, or an unsympathetic relationship with each other. The group is characterised by a sharing of feelings and emotions. A member is pleased at the joy of another or contrarywise displeased. Members positively or negatively reinforce each others' stresses, troubles, joys.

14.F6 The sympathetic relationship or system is a complex one in which the mediatory role of the perceived environment i, e, E, I and the motor responses, r, R, W and, the emotive conditioning of these, by "a" play a joint role. Common needs and emotions do not result in sympathy. Nor does an identity of feelings or empathy. The feelings and ideas of the person and the group cannot be identical. Consider loss, devaluation or misfortune. The person is distressed by the loss while the group is distressed because the person suffers loss : one is subject and the other predicate. There is however a relationship because the subject and predicate are, so to speak, in the same "sentence". The contents of the two classes of events subject and predicate are different. The one reinforces the other as long as the reinforcement is not incompatible.

14.G Mediation

14.G.1 Any change in the external or internal environment is sensed through elements ie E I and will, if threshholds permit, have an effect on the behavioural pattern, through regulatory responses W, R, r.

14.G.2 One of the main mediating agents is the activation and arousal syndrome. In a relaxed equilibrated system a change in the environment may not result in the response one could observe in a tense and strained system. The environment conditioning processes and responses have been conceived as the mediators through which the surroundings are transformed into responses.

We have altered the whole concept of the "organism" or"the person" being the mediator by relegating them to a part of the surroundings. We have instead postulated that a more complex network of classifiable events may be structurised to explain and predict the transformation of events functionally. For simple processes of a physical, biochemical or physiological nature, a one to one or correlated relationship is sometimes observable. When it comes to the emotive, mento emotive, cognitive conditioning processes, human behaviour cannot be predicted by such simple relationships. The internal and external environments, the conditioned relationships between each of these and the responses, the cyclic reinforcement patterns, the dimension of historicity and time and inertia, and the unpredictable activation syndrome all lead to a limited predictability, Action and reaction, meaning and attitude will not fit the role of simple reflexes or operants.

14.H Motivation, Emotion and the Activation Syndrome "a"

14.H.1 It is thought one of the ways AROUSAL or ACTIVATION "a" is caused, is by the stimulation of the nervous system. This possibly occurs in the reticulate system to activate the brain. Arousal can be observed as a manipulation of objects, exploration, curiosity, sensitisation, a release of drives, etc. Arousal seems to have a different starting point ("a" on the model) to what we may call primary drives hunger, thirst and sex which are a part of the normal cyclic behaviour of the organism (S_o on the model). One could think of a cycle as being catalysed or "started" by an arousal or activation. Once a cycle is set in motion, however, it may be reinforced or conditioned. This may itself cause arousal which may in turn result in further reinforcement etc.

14.H.2 It seems necessary that an organism S_o needs to be continually aroused and stimulated in the normal course of its activity. Where such arousal is not available due to sensory restriction, disorganisation, hallucination or a regressive reorganisation of functional and cyclic relationships may occur.

14.H.3 We have two dimensions from which we infer a change in what has been called MOTIVATION. These may be due to what we have called changes in muscular or nervous tension due to arousal or activation and, changes in performance due to reinforcement.

14.H.4 We use the term MOTIVATION to integrate ACTIVATION and REINFORCEMENT into a cycle which results in an increase of energy output or performance.

We designate MOTIVATION by a+. Motivation a+ is not to be confused with DRIVES such as Thirst, Hunger, etc. which arise in the total cycle S_o a h S_u

14.H.5 An awareness of the surroundings, the differentiation and structurization and conditioning of space, the recognition of stimuli - are forms of discriminatory REINFORCEMENT following activation or stimulation which result in what we have begun to call MOTIVATION.

14.H.6 Reinforcement is responsible for directing and selecting goals and needs. If correct responses are not reinforced, variable responses occur. The variability of the responses give some indication of the strength of the activation and the weakness of the reinforcement.

14.H.7 The directing and selecting aspects of motivation are therefore discriminatory and dependent on reinforcement schedules. Reinforcement or incentive may be physical or symbolic. Praise and reproof, competition, a desire for recognition etc. act as reinforcement. The set or instructions applied to performance (such as imposed instructions and self provided instructions), the self concept, self esteem, prestige and status, beliefs of what is right and wrong, all seem to be a source of reinforcement. Where a task is given to be undertaken and the individual is made to estimate his own performance a "LEVEL of ASPIRATION" or "self reinforcement" is achieved to result in a self regenerating cycle of behaviour. A similar phenomenon is observed in the tendency to imitate, which plays a significant role in the reinforcement of skills. Where a person goes blind at an early age and is not exposed to imitation, the resultant effects are observable in lengthier training. The group and training procedures reinforces imitative responses.

14.H.8 Investigations made of the learning capacity of motor skills and use of tools by blind individuals indicate the number of errors plotted against the number of experimental trials in the presence of material reward, verbal reward and no reward and inherest interest in the task, desire to please the instructor and competition indicated that reinforcement is the primary condition for "motivation" or a motivated state which is one of direction and selection.

14.H.9 EMOTION which we may designate a- is not a synonym for motivation a+ ; the responses are different though the source of activation may be the same. Rage, fear, anxiety, sorrow, love, hate, aggression, depression are some common features. Behaviour may start by being motivated and when frustrated may become emotive. High tension states tend to pass from motive to emotive responses.

14.H.10 A shock, STRESS or STRAIN in the external network or internal surroundings $S_u S_o$, a violent change, an introduction of strange surroundings, emergent events, inimical events, assault on survival or a dissonance in the network due to any other set of events, lack of stimuli or cues etc. is often seen to result in physiological activity such as pain, unpleasant feelings, nervous activity, somatic disequilibrium, rise in blood pressure and heart beat, constriction of blood vessels, dilation of pupils, erection of hair, desalivation, erratic breath, arrest of gastric activity, drop in GSR, injection of adrenalin or nonadrenalin, arrest of sexual activity and sometimes parasympathetic symptoms such as urination, defecation, lacrymation, laughter, pleasurable feelings, salivation etc. This is called the ACTIVATION SYNDROME.

14.H.11 The activation syndrome seems to have 3 consequences:

i) it energises the organism to meet a severe alteration in its surroundings $S_u S_c S_d S_r S_g S_p$ or an assault on its own living processes S_o. It can result in a motivation a+ when conditioned by an E+ or an emotion when conditioned by an E-. It can also be controlled by inducing positive involvement responses to training situations R+ rather than avoidance and escape responses R-.

ii) It can result in disorganised random motor responses running, jumping, blinking, screaming, shouting, tantrums, violence, uncontrolled sexual behaviour when due to a loss of regulatory control Rr. A stoppage of reinforcement or an adaptation to surroundings or a severe negative reinforcement may be required to arrest this type of behaviour cycle.

iii) it can result in the conditioning of incoming sensed stimuli i e E I and either enhance or block responses. Depressive states of inaction and regression are typical of the latter situation.

The activation syndrome can, therefore, result in either a disorganisation or breakdown in behaviour, or alternatively in a reorganisation and structurisation, depending on the manner in which it is environmentally conditioned and reinforced and the manner in which responses are shaped.

14.H.12 Fear, anger, pleasure and other responses are the result of incoming external and internal stimuli i e E I being conditioned by the physiological process known as the activation syndrome "a"

S_u e a r

This conditioned reflex cycle can be paired with a neutral stimulus S_c

$S_c S_u$ e a r

S_c e a r

and motivational or emotional conditioning be established thereby.

Emotional conditioning may be thought of over an extended period of time to be a cyclic operant. For example, a normal unconditioned stimulus event such as sex gives rise to sexual activity which may be followed by a punishment (presentation of a negative stimulus) accompanied by stimuli present which will be aversively conditioned. Such a cycle would also emit an emotional response. An emotional response may be fear or anger, which is incompatible with normal sexual activity and therefore inhibit it. Sexual behaviour may be replaced with an avoidance cycle - one may become a celibate.

14.I Anxiety

14.I.1 The disequilibrium created by a severe emotional state results in ANXIETY which is the continued emotional state preceding avoidance or escape R- responses. Anxiety is the emotional predisposition which precedes an unconditioned aversive stimulus and is generated by the expectancy of a conditioned aversive stimulus. Anxiety tends to deprive or block the frequency of responses. Normal responses are supplanted by avoidance responses. If anxiety is prolonged it can have a deleterious effect; nervous or mental disorders may result. Anxiety causes the normal function of the body to be disorganised. Normal stimuli relating to sex, food, living needs are blocked; Psychomatic disorders or malfunction can result from prolonged anxiety.

14.I.2 Heavy work such as farm labouring reduces the probability of the activation syndrome. It tends to condition emotion into a motivation. But this can only be done after adaptation. Since activation results in high heart beat, low visceral activity, physical exertion may intensify the symptoms as also nervous equilibrium if adaptation has not been allowed to occur. Yogic exercises have been found most conducive to relaxation of emotional tension.

14.J. Adaptation

14.J.1 Wherever there is a change in the surroundings resulting in an emotion or anxiety the organism slowly ADAPTS itself to the change; the activation syndrome then subsides, and the emotion automatically is reduced. ADAPTATION to changed circumstances is a process which must be allowed to occur prior to any deliberate effort being made to shape behaviour in training. The activation syndrome will otherwise not extinguish and interfere with or block effort at training or conditioning or result in avoidance which does not necessarily reduce the emotional state.

14.K. Emotion

14.K.1 Let us take an example which may illustrate a possible mechanism .

I was walking down the road at dusk (a h, ie, r)

A young urchin comes towards me. A little way beyond I see a wriggling object. I step to one side but continue my walk. This is a conditioned reflex - a one time occurrence (S_u e r).

I "notice" (perceive) that the creature has beady eyes and a forked tongue. 2 possible cycles simultaneously come into play

S_c	S_u	e	r	
wriggler	city street	rope	step aside	
S_d		-E	R	a
eyes tongue		snake perceived	jump away	activation syndrome hair stood on end
S_d		-E a	R-	
snake		aversive environment	escape, run	

The a combined with -E results in an emotion : a-, Fear

The snake sped past me behind the urchin who began to laugh. I notice it was a toy. My hair however continued to stand on end and the "fear" did not leave me for quite some time until a- seemed dissipated and I returned to normal.

r	S_d	E	R	a
running	toy	neutral toy	stop running	neutral fear disappears
R-	S_g	I	W	R-
escape run	urchin laughs	fool	stop!	walk away quickly

The a combined with I- and the responses R- results in an emotion a-, a blush and nervous laughter.

14.K.2 The situation and events described above are somewhat different to those in which I stumble across a stone walking down a street. A pure reflex would send my arms outward to save me falling - I may suffer from a shock

S_u i r motor response

a- shock, loss of breath

but there is no state or condition of emotion or fear present. There is no external stimulus E or I to create such an emotion.

14.K.3 The response R- is one of escape from or avoidance of the environment E. "a" neutral can turn to an a- Emotion syndrome by being associated with an E-. Contrarily an "a" can be altered to an a+ motivation by being associated with E+. It is only when the whole cyclic episode is complete that FEAR can be observed and become manifest even to oneself ; FEAR is not a response, it is a CONDITION in which the network finds itself.

14.K.4 Though it has often been demonstrated that the conditioned reflex is merely a pairing of stimuli as follows :

lying	punishment	-	fear)
	lying	-	fear)
strange place	hurt	-	fear)
	strange place	-	fear)
race	crime	-	hate)
	race	-	hate)
water	choke	-	fear)
	water	-	fear)

it is clear that the process is perhaps not so simple. Fear and hate are emotions.

14.K.5 A one to one relationship of feeling and emotion or intellect and emotion does not exist. Emotion is a conditioned relationship where the environment i,e,E, I in concurrence with a and rR+ result in a response of fear, or anger, pleasure or displeasure, love, hate, etc. attack or defence, fight or flight, aggressiveness or withdrawal. One can laugh while feeling sad.

14.K.6 There is no single more vital factor in the understanding of behaviour than emotional mechanisms which affect the individual and the group resulting from a linking of the activation "a" syndrome with the environment i e E I. One can entirely alter behaviour and control it and understand or predict probable responses if one studies and classifies the events in the systems which are affected and conditioned emotionally,

14. L Frustration and Deprivation

14.L.1 Frustration or deprivation are blocks or upsets placed in the functioning of a cycle of behaviour. Stress and punishment for example result in emotion which blocks or upsets networks.

When blocks occur alternative responses and a new set of cycles develop in response. To begin with these may be disordered but they eventually fall into a pattern of AVOIDANCE or ESCAPE of the aversive events. This avoidance is sometimes called displacement, or defence or inhibition. The cycle is reorganised sometimes with a concomitant regression to an earlier stage of development.

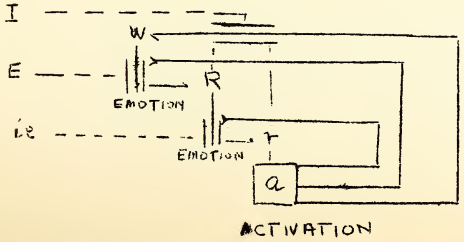
14.L.2 The presence of frustration or deprivation or aversive stimuli which result in blockages in the normal functioning of existent cycles is recognised by the responses emitted.

14.L.3 Emotional/motivational conditions affect a whole class of responses. These responses are manifest as avoidance, aggression, reaction and apathy, repression, forgetting. All these types of behaviour represent a change in the organisation of networks which may "rationalise" themselves in new fixed forms of behaviour which avoid the aversive stimuli generated by real life situations.

14.M The emotive cycle

14.M.1 Look at AVOIDANCE and ESCAPE as a reorganization of behaviour, a compensatory steering or willful response cycle which must occur to overcome a block. On any avoidance response being reinforced i.e. the block being circumvented a new cycle is established and a conditioning of the past cycle occurs. The types of block are common : the EMOTIONAL and the SENSUAL (or SENSORY).

14.M.2 An emotive block can be represented as $S_u e \; a_ r \; S_I E \; a_ R \; S_g I \; Rr \; W_$. The model depicts emotive areas as under:



When "a" is acting as a motive or positive reinforcement we could designate it a_+, when it is acting as an emotive or negative reinforcement as a_-. An "a_-" disturbs and BLOCKS the environmental throughput to the responses R and r while a_+ facilitates throughput. The block consists of the arrest of external control stimuli through the senses. In compensation external control stimuli are replaced by stimuli emanating from the activation syndrome "a_-". Since E, e and i are withheld one observes an obsession with the I an "introversion"; an absence of responses positively controlled by an external environment. Where responses R and r do occur they directly condition a_-, or W_-, which finally cascades through R and r to be cyclicly reinforced by a_-. Fixation, regression, meaningless and repetitive responses seem to be phenomena connected with this type of internal cycle.

14.M.3 If the activation syndrome is not regulated and is allowed to continue to persist without adaptation the cut off of external environment continues. The cycle a h i r then takes precedence over all else. Hysteria, neuresthenia and other pathalogical oscillating repetitive states indicate a build up of reverberatory motor cycles outside the stimuli control of the external environment. The emotional block may be the crux of all nervous and personality disorders arising out of a breakdown from this source.

14.M.4 R r are regulatory responses which regulate the activity of the organism through "a". If they are unable to function the organism lapses into pathalogical disorders.

14.M.5 ii) The sensual block : S_u/r

The senses are cut off, or one of the senses is cut off, An example is the onset of blindness.

14.M.6 The first phenomenon one observes is a continuing psuedo sighted behaviour to overcome the physical sensual block. The sensual block gives rise to a physical disability which in turn results in an emotive block resulting from frustration.

14.M.7 The physical block can be overcome by restoration and conditioning of the remaining senses. But more important is the continuing state of SHOCK, the prolonged assault on survival, the result of a sustained activation syndrome a_-, which chokes off any normalcy one would expect purely on lack of sight.

14.M.8 Of paramount importance is the passage of time to allow for adaptation without the involvement of prodding and "sympathetic" help. Such "help" often leads to avoidance and escape cycle reactions whereby the intensity of the emotive block diminishes but further frustrations and conflicts arise to give cause to a continuance of the activation syndrome.

14.N. Conflict

14.N.1 When any part of the behavioural system network is in disonance or opposition to any other, conflict may be said to exist. When the steering response S_s says "go left" in one cycle and the same response says "go right" in another or, when one internal environment i says "go" and the external e says "stop" or when the discriminatory stimuli E- say "bad" and the group say "good" I+, or when the person S_p is the "boss" and the self concept I is a "rat", or when the body says "die" S_o, and the will says "live" W+, there is a conflict. CONFLICT is the result of a stimulatory reinforcing and discriminating condition. It can however result in FRUSTRATION - it creates its own block of inaction due to a non-resolution of alternate responses. The answer to conflict is reinforcement or stimulation of organism and the implanting or selection of directions. Emotion and concomitant frustration automatically result if direction by arousal of interest, or reinforcement by incentives, rewards etc. is not given. The conflict must be broken -even by punishment if necessary.

14.N.2 The response systems or cycles of behaviour which cannot be emitted simultaneously are said to be INCOMPATIBLE. Conflict can arise from incompatibility. For example, if isolated from other variables, a blind person's history of positive reinforcement on approaching strange objects and acclimatising himself to strange surroundings determines the probability of his approaching other strange objects, a similar situation in reverse could occur for avoiding strange objects. The two separate probabilities of approach and withdrawal may result in inaction or a state of CONFLICT within the network.

14.O Some examples of aversive states and avoidance mechanisms

14.O.1 A positive reinforcing stimulus satisfies or is pleasant. The removal of a positive stimulus is a negative reinforcer and is unsatisfying and unpleasant. Both increase the rate of responses. Responses reinforced by the removal of an aversive stimulus are ESCAPE responses. Responses which occur in an effort to avoid an aversive stimulus are AVOIDANCE responses. Presenting an aversive stimulus has the same result as DEPRIVATION (negative reinforcement).

14.0.2 The presentation of an aversive stimulus or a shock or a change in surroundings provides an opportunity to reinforce such behaviour as will remove it, but simultaneously elicits the activation syndrome and an emotion, or an anxiety state. It is almost impossible to change behaviour during training, the blind presenting negative reinforcers (punishment) because they elicit emotive blocks which interfere with the responses to be shaped. This is much more so in situations where the sighted teach the blind. One cannot push a person. Always pull him along.

14.0.3 Avoidance is reinforced by termination of the state of shock or a continuance of the activation syndrome. For example fear is likely to emit responses reinforced by the elimination of frightening stimuli. A response cycle such as phantasy or lying which terminates an emotionally aversive or painful state will increase in frequency if such a cycle is reinforced negatively by emotion. The blind person seeks to escape aversive states by creating a phantasy life. There are situations however in which emotional and painful states are themselves reinforced, the emotion being less aversive than the surroundings. Blindness acts as a compensation for the inadequacy or incompetence of a person in a normal group situation. The onset of blindness diverts group attention towards the person in a manner which would never have been possible had the person not gone blind. Attention comes easily to those who have led an underdog existence.

If one punishes a blind trainee for misbehaving one starts an emotional cycle. If this emotional cycle is incompatible with the misbehaviour being punished the frequency of the misbehaviour will decrease in the presence of the emotion. The emotion will act as a block to the misbehaviour, but the misbehaviour is not extinguished. It is replaced or displaced by an avoidance, which is incompatible with the misbehaving. For example the punished child behaves obediently. Punishment leads to doing something else (i.e.) avoiding the punishment i.e. behaving sweetly. As punishment is avoided by incompatible behaviour or avoidance the incompatible behaviour is itself extinguished, the punished behaviour when again appears. The punished child begins to misbehave as soon as the punishment is removed and avoidance extinguished. The only way to get rid of misbehaviour therefore seems to be to extinguish it by "playing it out" without reinforcement.

14.0.4 Driving a man to work often disrupts his behaviour because of aversive stimuli generated. Errors which are the result of anxiety if criticised will increase anxiety. The probability of errors occurring will rise. Criticisms or

negative reinforcement of work may increase the rate of work but working under such conditions is difficult because of the emotional stress generated. The work itself becomes aversively conditioned. If strong aversive methods are used in training the probability that trainees will continue to work after resettlement will be low.

14.0.5 Behaviour can be altered by means other than coercion. Responses may be conditioned by the surroundings. The surroundings may themselves be conditioned to repeat the self same responses as reinforcers. A change in surroundings may therefore be needed to break certain cycles and systems. New surroundings would have to be dissociated from previous situations and events or else the whole fabric of past aversive stimuli may reimpose themselves through stimulus generalization EI. A blind person coming from an institution where he was hemmed in by the walls of the building may still feel hemmed in a large courtyard with "walls",though not by open fields with "ditches".

14.0.6 A process whereby conditioned stimulus loses i - ability to elicit a response is known as extinction. The conditioning can be broken by the removal of the unconditioned stimulus over a period of time or by a new stimulus being imposed which is incompatible. One may think of changing behaviour by using this approach wherever applicable. The classic case is alcohol inebriation resulting in drunken behaviour. Alcohol with a regurgitant - makes one vomit, and sometimes as a result alcohol drinking habit is extinguished. If a stutterer is no longer scolded or laughed at the anxiety may be reduced and stuttering may also be reduced. Alternatively he may be encouraged to talk frequently. If a blind rice eater from the South is to be conditioned to the wheat supplied in his diet this will have to be done step by step rice > wheat to wheat > rice. Deprivation such as the withholding of food is potentially likely to emit responses which are reinforced by food. But, when deprived of food an anxious person may not eat, anxiety and the reduced gastric activity which accompanies it being incompatible with eating. This would come in the way of conditioning.

14.0.7 Society condems jealousy, lying, fear, anger, emotion. This condemnation (punishment) increases the aversive stimuli associated with these states. Getting rid of a strong emotion means one has to negatively reinforce the emotional behaviour. Tantrums are extinguished by nobody taking any notice of them. Alternatively the emotion can be reduced or eliminated by removing the aversive stimulus. Tantrums may be reduced by keeping the need out of sight. A person can lose a conditioned dislike for a situation by being frequently in the situation under conditions which do not arouse dislike. Being afraid of going out on his own the blind man gets over the fear by doing

so many times. In such a case the emotions associated with the condition are extinguished. Alternatively one can engage in behaviour which is incompatible with the dislike e.g. loving your enemies, which is incompatible with hatred, doing good which is incompatible with evil.

14.0.8 Morals generate conditioned aversive stimuli whose removal controls a variety of responses which are generally termed resisting temptation. Certain types of responses or attitudes are "wrong" and others "right", some "good", others "bad"; some "sinful", some "godly". Sin, bad, wrong, responses become aversive stimulus. The thought of masturbation becomes an aversive stimuli if masturbative acts are punished. An avoidance response characterised by a state of anxiety is known as GUILT.

14.0.9 Avoidance : Cycles within cycles

i) Alcohol is imbibed to control anxiety. Tranquilizers are imbibed to control aggressiveness or excitement and emotion. One conditions and reinforces behaviour which eliminates the aversive situation. The avoidance behaviour in turn becomes habitual and fixed. Addiction is a habitual response cycle of avoidance or escape. Alcohol reduces the aversive stimuli of emotion. It puts one to sleep, it decreases anxiety. Under intoxication, people are likely to engage in behaviour which is punishable by society. Alcohol reduces aversive stimuli which could have resulted in a neurosis. Where there is no alcohol, there are other forms of behaviour such as fantasy, illness psychosomatic disorders, sexual perversion.

ii) The continuahce of addicted behaviour is strongly reinforced by the escape from or avoidance of a primary set of aversive stimuli. The removal of addicted behaviour results in a secondary set of aversive stimuli. The discontinuing of the addicted behaviour will, therefore, produce symptoms of punishment. A situation of escape or withdrawal from such punishment or stopping of the addicted behaviour will occur. To break into addictions or habits formed from avoidance behaviour, extreme/drastic change of the addiction cycle seems to be necessary.

iii) You will note that there are many levels of avoidance and conditioning.

14.0.10 One withdraws or escapes from an aversive situation. Alternatively, aversive stimuli can be prevented by attack or aggression. An aggressive person is reinforced when he coerces events or other persons. Aggression, however, generates conditions of counter aggresstion e.g. criticism is countered by criticism. A vicious circle often develops. Aggression is a form of REACTION, behaviour which is incompatible or displaces behaviour associated with aversive stimuli.

a person who has stopped cheating may insist others do so too, hence eliminating the aversive stimuli which he himself would otherwise be exposed to. One campaigns for blindness. A person who does not help the handicapped and may not wish to drive himself to do so finds that people frown on him. Since he must, he insists others must do so too. This reinforces his behaviour and helps eliminate the aversive stimuli associated with his seeing a handicapped person or poverty striken person around him and having to help him against his will. This type of reaction is, therefore, incompatible with punishable behaviour, Reaction is a form of response which avoids aversion. It helps repress unsocial responses, forget, not notice. To repress or displace unwanted thoughts and behaviour does not help extinguish such behaviour. It always lurks in one's innards. Where incomplete repression occurs, behaviour will continue to be punished by society. The way to eradicate repressed behaviour is to bring it out "let it die a natural death" and not punish it nor drive it into an avoidance or escape reactions.

14.P. Rationalisation

14.P.1 Explaining the non-punishable aspects of one's own behaviour or the group's behaviour is called rationalisation. The blind and the sighted rationalise their approach to their own handicaps. The blind person assumes he needs help and the sighted group believe that help is necessary. When the group or the person punishes another because of aversive emotions elicited within it, it rationalises its behaviour - one beats a child because one is angry not because it has done something wrong. Helping the handicapped often results from a guilt of neglecting others.

14.P.2 A person or the group admits only the least punishable reasons for their behaviour. The self concept is the rationalised part of what a person sees of his behaviour in terms of the group and his surroundings and is a function of events with respect to which he is least likely to be punished. The self concept may be a deliberate or repressed deception or fantasy. One may lie to another or to oneself and not tell the truth even to oneself because such a truth is punishable by the group.

14.P.3 Behaviour which is controlled by stimuli such as "right" and "wrong" is termed CONDUCT. Conduct is invariably rationalised as it is conditioned to punishable and non-punishable roles and attitudes. Not striking back may be forgiveness or may be cowardice depending on the events which precede it. One could rationalise either way. The sighted person tends to rationalise situations in dealing with the blind by calling them maladjusted.

14.P.4 Behaviour which has never been punished cannot be rationalised.

14. Q. Mobility

14.Q.1 In physical mobility training, the first step is to establish auditory and tactual stimuli as conditioned stimuli by the repeated pairing of these with unconditioned stimuli of an aversive nature such as collision, thorns in the feet or falling in a ditch.

Terrain Bare feet		
S_c	S_u	r
	Collision	Unconditioned response
	S_c	r
	Bare feet	Conditioned corrective response
Auditory stimuli		
S_c	S_u	r
	Collision	Unconditioned response
	S_c	r
	Auditory stimuli	Conditioned corrective response
Haptic stimuli	Balancing veering	Unconditioned response
h	i	r
	h	r
	Haptic stimuli	Conditioned corrective response

14.Q.2 Moving randomly, the trainee moves into obstacles which act as negative reinforcement. Movement is not wholly random however, because it is regulated by the movement of the limbs.

14.Q.3 The feedback from the body becomes the conditioned reinforcer and reinforces physical mobility. It is like learning to ride a bicycle or carrying a plate full of water. The final pattern of the movement (the cycle) reinforces the movement

itself. The very effect of being mobile reinforces the movement which reproduces it. We have here a situation which amounts to one type of cyclic system reinforcing another.

14.Q.4 Many motor skills are shaped slowly because of the long time it often takes reinforcement to follow the responses. In learning mobility and other motor responses or repetitive multiple response skills, one needs to ensure a continual motivation by reinforcement and arousal in an environment of stimulating objects, encouragement, example, imitation, rewards, goals and needs. Reinforcement schedules should be so planned as to fit in with long term motivational needs. One does not wait for the best performance before reinforcing with encouragement. On the other hand one does not continue to encourage when the blind person is resettled. Goals and needs are built into the long term predicament of work and status through training and adjustment.

14.Q.5 Once one type of behaviour has been shaped - such as learning the operations of mobility or the learning of a language of the senses, other similar behaviour can be quickly conditioned due to the common elements between two types of behaviour some of which may have been previously reinforced. The pairing of similar systems is conducive to shaping. One does this continuously by running parallel courses of training in a number of activities in agriculture, dairy and poultry keeping.

14.Q.6 Many skilled forms of behaviour such as mobility need a repetoire of responses differing from each other only slightly and under the control of a continuous range of discriminatory stimuli. Such states are shaped by formal training. Once the trainee has acquired the ability to be reinforced when the produced response matches the response to be copied, imitation occurs and deliberate teaching time may be reduced. The correct responses reinforce the subsequent responses, acting as discriminatory stimuli themselves.

14.Q.7 In mobility safe movement is differentially reinforced by collisions. The speed of travel is differentially reinforced by the extinction of fear & emotion and reinforcement of confidence.

14.Q.8 One acquaints the person with dimensions symmetry, proximity, similarity, auditory space time, the location and recognition of trees, streams, walls, haptic space time, how to walk, the posture, keep a straight course. One acquaints the person how to recognise sense clues for himself. How to link the terrain under his feet to a schema of the environment in which he lives and works. Little by little by successive approximations one goes out further and further, learns how to manipulate the body air and avoid obstacles S E- R- and perceive the surroundings. One is first led, assisted less and less and, finally, left on one's own. The emotive conditioning blocks are

broken down by altering the surroundings so as to provide a self concept in terms of the person S_p and the group which will enable the person to accept his disability and the group to recognise that disability. One cycle begins to be used to condition a second.

14.Q.9 One is trained through successive approximations both physically and socially and emotively to a final independence. Independence is illustrated as the breaking of physical blocks and emotive blocks by the conditioning of these through regulatory responses arising out of the environment.

14.Q.10 The surroundings are manipulated, the person and group interact. One gradually shifts the criteria and standards of performance. One provides reinforcement S_r to the responses R r which are correct. When the task is easy many alternative types of behaviour are reinforced i.e. if one has to go from one side to the other in an empty room one can take a number of routes. But if the room is cluttered up with obstacles only one way may be possible, the others being blocked or impassable. When a path is blocked the criteria for differential reinforcement exist. One shapes behaviour by placing the necessary blocks and openings in place : rough ground, smooth ground, hedges, ditches, trees.

14.Q.11 So also complex skills in multiple response training are shaped. Measuring out a field with a peg and string, using a variety of tools to tackle hard, medium and soft soils. One reinforces only certain responses - extinguishing others : one gradually changes the criteria or standard of performance.

14.R. Social Manouvreability

14.R.1 The mobility continuum response deals with physical space - with objects in 3 dimensional space and contingencies, obstacles, orientation and movement in such space. Motor responses predominate. The "movement" in a continuum of responses which affect the emotive/motive space, social contingencies, settings and personality/group contingencies is also part of the same or similar behaviour cycles. The "movement" whereby we "touch objects", "achieve goals", "satisfy needs" is a continuum in which movement is coordinated by motive, emotive, mental and social structures, obstacles and boundaries.

14.R.2 A particular manouvre pattern is closely related to the mental events or cycles of sensual and discriminatory events/responses which produced it. Differential reinforcement is planned so that crude imitation is slowly refined by successive approximations. Changes are made bit by bit. If standards are raised too rapidly the response may be extinguished.

14.R.3 Once a form of behaviour has become reinforcing the movement cycles which produced it also become reinforcing. The space sensed conditions the space visualised, the space visualised conditions the space conceptualised, the space conceptualised conditions the space sensed. The cycle repeats itself.

14.R.4 Teaching a blind person how to manouvre in social, mental and emotive situations is reinforced by example, by an imitation of acts to be performed in living situations. In shaping complex forms (topographies and patterns) "likeness" or "similarity" "abstraction" and "generalisation" play a critical role. Performance is directed to match. "Like" behaviour is reinforced "unlike" extinguished. Once likeness is established the trainee will continue to shape his own behaviour with adequate discrimination.

14.S Learning, intelligence and association

14.S.1 Learning is motivated by arousal and reinforcement.

14.S.2 Speed of verbal and non-verbal LEARNING is called INTELLIGENCE. Learning is easier in the absence of tension or frustration or conflict. Where preliminary conditioning or adaptation is not allowed to take place i.e. unconditioned responses are not allowed to adjust themselves to unfamiliar surroundings, responses to learning or conditioning will be absent or blocked. We often observe incompatible emotional behaviour blocking the learning response, Without adaptation the individual learns much slower. Learning or conditioning can occur very rapidly once adaptation is complete.

14.S.3 When adaptation is complete one can change responses by providing reinforcement deliberately. Alternatively reinforcement can be adventitious, or causal.

14.S.4 A slow learner recuires a great deal of reinforcement before developing a high rate of response. If the training given is deliberate he is less likely to develop adventitious responses. A fast learner is conditioned by adventitious stimuli - the responses are not as predictable. Such intelligence often proves a handicap and needs special care and development as in the case of sighted children.

14.S.5 Operant conditioning responses are not necessarily followed by deliberate or need satisfying reinforcement. Accidental contingencies can also reinforce behaviour.

14.S.6 Rain may fall after prayers are said. An event forecast through astrological portents may occur. An expectancy may be created i.e. of marriage, and the individual finds himself unconsciously working towards the expectancy, and getting married. Food may be provided to a dog when it sits quiet, whereafter the dog will remain quiet when it wants food.

14.S.7 If one does something peculiar or unusual and is reinforced by attention or success or praise it is probable one will tend to do it again. If one feels dependent and childish and is encouraged by another who wants to have someone around who is dependent and childish one is reinforced to behave that way. A quack may recommend plain coloured water as a medicine and, your aches and pains may disappear. The process may be worthless medically but excellent suggestively or psychologically being nothing but a form of conditioning. The elimination of the pain may however be purely accidental, it was subsiding in any case. It is difficult to distinguish such psychosomatic effects from purely adventitious ones.

14.S.8 Accidental smells, sounds, sensations and events are paired with unconditioned stimuli. The day and events on which one went blind, or lame or deaf remain always imprinted on the memory as somehow connected with the handicap.

14. S.9 Where there may be no so called causal relationship between response and reinforcement except accidental occurrence or pairing an adventitious relationship is said to exist. Culture, religion, superstition beliefs are such reinforced adventitious responses. They can be verbally transmitted. They form the major source of opinions on "blindness", "retribution" fateful occurrences "destined events".

14.S.10. This ASSOCIATION of events, sights, feelings, words, ideas is the main stuff of reality. The fact that there are no causal relationships is of no relevance to the manifest behaviour.

14.T. Memory training among the illiterate blind

14.T.1 The ability to read, to record a symbol on paper and allow the symbol to elicit a visualised response is barred to those who are both blind and illiterate. The training of illiterate persons and "fixing" what is learnt int the memory involves a repetitive behaviour cycle such as

a h ie r
of r S E R
r

We must therefore design a learning structure in which words are palimpset on the senses and verbal symbols paired and reinforced with sensual events.

14.T.2 One starts by describing various objects and situations sensually and simultaneously relating these to behavioural patterns. For example there are different types of soil : clay, sand, murrum. These are known by their feel, their smell when wet, their taste and their "back breaking" properties when cultivated. A number of words are introduced : sticky, crumbly, grating, heavy, light, dusty;each of these are sensed and paired. One names the perceived or sensed environment and sensually experiences its attributes. There are no definitions such as are found in the dictionary.

14.T.3 The growth of the riceplant or the wheat plant or the fruit on a fruit tree is felt, smelt and tasted from the seed to its fruition. The season is conceived of in terms of the change in morphology of the plant. The association of words with sensation is approached in the form of an aesthetic experience rather than a "lesson" being "taught". With the growth of the riceplant goes the work pattern. The digging of the earth, the planting of the seed, the coming of the rains, the sprouting, a fabulous sprouting of life in bare hands, the weeding, the tending, the nurturing, the final cutting, the harvesting and the eating.

14.T.4 One learns how to express one's work in words and thereby learns how to communicate what one is doing.

14.T.5 The blind person is also brought round to realise he is part of a sighted group. These give him the attention, affection required. They approve and encourage hisactivities. They also provide him with an experience of the hard realities of human callousness, pettiness, ignorance, selfishness. He learns to see himself as a blind man with limitations, to see the group of sighted people with whom he must live and work, accept their limitations, superstitions, sympathy and unsympathy. He developes a sense of himself : a self concept I.

$$S_p S_g - I$$
$$R S_g - I$$

14.T.6 The process of learning mentioned above gives MEANING to what is being expressed and said because of what is done. The secret of creating a climate of learning is the combination of action with words. Mere symbols have a limited significance- they can never become ingrained. Symbols conditioned by symbols become farfetched images. Having no foundation in the mental or

emotive structure of behaviour they are quickly forgotten. One never forgets how to ride a bicycle or to walk mobile or for that matter, how to "grow rice". One does however forget that Prime Minister Nehru was born on the 14th November or that the name of the stuff that makes up molecules is "atoms". Information never used and felt and cogitated upon is quickly forgotten - there is no behavioural imprint made and hence nothing to erase.

14.T.7 It is of interest that the memory cycles mentioned above are pervasive and lasting. This is because they are ingrained in the senses. If they were purely intellectual i.e. symbols conditioning symbols, memory would be tenuous because it would not be associated with the fabric of sensual responses. One tastes wine with one's tongue, one's gullet, one's liver, one's bladder and the blood coursing in one's veins. One tastes life by breathing, seeing, acting, imbibing reality - not merely verbalising it.

14.U. Development and regression in the network

14.U.1 DIFFERENTIATION and STRUCTURIZATION are controlled by the discriminatory process cycle or system

$$r\ S_r\ E\ -\ R$$

where involuntary responses are reinforced by being followed by a reinforcer S_r and where a second stimulus S_d is present in such a contingency

$$S_d\ r S_r\ E\ -\ R$$

S_d becomes the conditioned or discriminatory stimulus. An example are verbal stimuli which act as discriminatory stimuli : "stop" "wait", "go".

14.U.2 A concomitant opposite process is SYNTHESIS COALESCENCE of the field, stimulus generalisation and stimulus similarity resulting in a gradient which accounts for associative and adventitious pairing processes. Ideation and abstraction of responses is a generalisation process and is often mutually incompatible to differentiation or discrimination. For example when one says "all blind people are mentally defective"or "the blind are usually deaf" etc. is generalising by applying the attributes of one type of stimuli to another.

14.U.3 Sweetness, sourness, hotness, coldness, softness, righteousness as responded to may be reinforced or not reinforced leading to a secondary discrimination of VALUES which in turn leads to differentiation and structurisation of the VALUE field of events. A VALUE is nothing but a discrimination linked to reinforcement through a process of abstraction.

14.U.4 The behavioural system network we are looking at is essentially a growing changing and DYNAMIC set of events which evolve by a progressive differentiation and synthesis into structures and functions. When we express events as a system we only illustrate a momentary status of a part of the total field of events, focus our attention so to speak on one part of behavioural space. The process of evolution growth or change can only be, however observed by determining the differentiation and structurisation of the total field of events. An illustration may help us to understand this :

Regresstion _____ Development

Undifferentiate environment | Boundaries of environment | Differentiated environment | Structurisation of environment

14.U.5 Differentiation and structurisation result in the increase of the dimension known as REALITY : the separation of psychological time into past, present, and future, the perception and discrimination of events in space, perspectives of response action and reaction, the discovery of inaccessible regions of the field of events. As this happens Development is said to occur. The reverse is known as REGRESSION. REGRESSION is characterised by disorganisation of behaviour and an increase in the dimension of UNREALITY.

14.U.6 The process of differentiation is of key importance in a blind person's development. Take the case of a person who becomes suddenly blind. His external visual world is cut off. To begin with he cannot differentiate one object from another easily and orientation, mobility, which have a primary dependence on sight are denied to him. He must slowly "adapt" himself and thereafter "learn" to differentiate between one event and another in a new regimen without visual perception. He must acquaint himself with the use of new stimuli and fram his responses into a meaningful scheme of activity in relation to himself and others. Regression automatically takes place to begin with resulting in depression and a supression of the response activity which was linked with sighted stimuli. Similarly when a new recruit comes to TACEB straight out of a village or an institution he finds himself exposed to new stimuli in an open sighted social environment. He learns to use his latent discriminal process to differentiate his surroundings: to find his way around, learn a new language in terms of physical and mental sensations and adapt himself to hard labour. He learns to establish group and social relationships with the sighted. What was to begin with a uniform nebulous confused picture of the world begins to fall into place, separate out, crystalise and become a pattern of real and discrete events.

14.U.7 Many a blind person comes to Phansa from the City. He may have only learnt to walk on city streets and he is only used to mobility where a simple grid of houses, footpaths and crossings are available. You may ask him to go across a field, wade through a stream and finally locate himself at a village half a mile away along a winding path. You may give him clear instructions of how he should proceed and find that he never gets to his destination. He knows how to move and differentiate the clues in a city environment so as to keep himself safe from immediate obstacles, but is unaware of structure of the new rural environment.

14.U.8 A development of a structure of events is, therefore, essential to a blind person's learning or insight. Any unstructured field of events has the same effect as a block leading to uncertain behaviour. A number of events can effect . the person but the structurisation of the field determines what development is possible.

14.U.9 The onset of blindness acts as a BLOCK to a blind man's development because it affects the differentiation and structurisation of the network in terms of the restriction of external visual stimuli. A blind person's past case history almost invariably involves periods of resultant emotional anxiety and fantasy. Further institutional or family frustrations and conflicts catalyse a regression in the network.

It has been found that unless a planned intelligent and patient effort is made to help differentiate and structurise a blind person's life by relating his language to his sensual experiences, stimulating discrimination, changing his surroundings rehabilitation proves a failure. It is, therefore, of prime importance in any course of training to adopt techniques that cater to DEVELOPMENT. One may find one can specifically achieve this by encouraging and motivating the individual, reducing all factors leading to conflict, frustration, anxiety and other emotional disequilibria and so shaping the environment that adjustment automatically occurs and is not limited to efforts at training and teaching.

14.V Choice and volition

14.V.1 We have gone through our network from different points ov view. A fin·l comment needs to be made. What is volition? Is there anything such as voluntary or "free" choice?

14.V.2 We have divided responses into two categories

a) Involuntary r and R
b) Voluntary W

Voluntary responses W have been defined by us to arise directly out of the drive cycle S_o a h S_u through the activation or arousal syndrome "a". We have assumed that where there is no arousal or activation there can be no volition. Further we say volition is conditioned by

a) the self concept $\pm$ I and group concept I$\pm$
b) the responses R$\pm$ and r

a negative self or group concept results in a lack or arrest of will or a lack of choice W-. An avoidance response R- results in a lack or arrest of will, or a lack of choice W-.

14.V.3 In our model the will, in turn, controls the steering response R. R however also depends on the structure of meanings and values in the environment E.

14.V.4 From the picture we have drawn we find that voluntary responses W are conditioned by roles and attitudes as also the involuntary responses Rr. This supplies one of the keys to our problem - if we could change the surroundings and the self and group concepts, if we could change an avoidance into involvement response by changing the meanings and values of the perceived environment, if we could control the emotion and the activity of the organism - a person could radically alter behaviour by the exercise of his own will.

INFORMATION

15.1 Behaviour cannot be described verbally unless it is "noticed". The person cannot describe much of his own past behaviour because of this. Experiences may be lost because of a lack of verbal behaviour at that time. Verbalisation helps the memory cycle. If a person is to describe his own feelings and behaviour he must have verbal memory stimulus for the response. A person doing one thing and thinking about something else may later be unable to describe what he was doing. Covert verbal behaviour is incompatible with noticing what one is doing e.g. "absent mindedness", "regression", "forgetfulness". Self observing behaviour is not reinforced if one has a negative self concept.

15.2 Talking about severely punished situations, aversive situations, blindness, handicap: l generates strong emotional stimuli. Avoidance behaviour i.e. talking about other things is automatically reinforced. Alternatively escape behaviour which terminates the aversive stimuli is reinforced. The blind man and his family will not think about severely punished situations or aversive stimuli. By doing, saying or thinking something else, lying or creating a world of their own beliefs, and desires (fantasy) they reduce the impact of the aversive stimuli. A person, therefore, usually notices and describes such a stimuli as are unpunished and gives unpunishable reasons for his behaviour because they are less aversive than punishable reasons. This is a form of lying or fantasy. Lazy behaviour can be explained by sickness or maltreatment of the family. In fact one may fall sick by self suggestion or learn to hate others unknown to them.

15.3 The probability of a person or a group of persons being conditioned to notice some aspects of his or their own behaviour is therefore reduced by engaging in avoidance behaviour which is incompatible with noticing their own behaviour. Any behaviour criticised or punished by society is frequently followed or associated with aversive stimuli and conditioned by such stimuli. Assuming a person is punished for sexual behaviour, verbal slips, clumsiness, fumbling, blindness, nuisance value, aggressiveness, quitness or any other form of behaviour it is critical to investigation to understand it is not the response that is punished but the aversive stimuli S_d under which it occurred which makes it punishable or not. Society punishes handicap or the weakness or the incompetence. It usually criticises a person because he is different or is associated with aversive stimuli and unpleasant feelings.

15.4 Inventories, questionaires and investigations of the family recorded verbatum often give completely erroneous or contradictory "facts". The fact of the matter is that one is looking and recording rRW responses which are the resultants of perceptions ieEI of the person and the group. The contradictions are of minimum importance in piecing together what the investigator actually observes in the surroundings of the individual and the group $S_d S_r S_s S_p$, the emotional and motivational state of the network aWRr, the blocks and frustrations to the environment ieEI/a.

15.5 Here is a sample questionaire.

a) Question to person : How did you go blind ?
Answer : Small pox

b) Question to family : How did your son go blind ?
Answer : It happened suddenly - no body can explain it. One day when he was lying in bed 15 years' ago, he woke up and began to feel his way around.

c) Question to family : Was it an accident ?
Answer : No, no accident - a visitation.

d) Question to local villagers : How did he go blind ?
Answer : The goddess Devi visited him. People go blind because she comes. So many.

e) Physical/medical : Local doctor's diagnosis - small pox

f) Observer's noting : No signs of small pox are visible any where on the body.

Here is another sample questionaire.

Question : How old are you ? Answer : 18
Question one month later at the training centre : How old are you ? Answer : 26

Question : Why did you give incorrect information ?
Answer : Because institutions only take blind in who are young.

Question : What evidence have you of your age ?
Answer : None. Ask my mother.

Question on a visit to mother : How old is your son ?
Answer : Who keeps a man's age? Maybe 30 to 35. See, how old am I ?
Observer : Looks to be around 30 ...

to their inimical way of life.

AN APPROACH TO ADJUSTMENT OR REORGANISATION

16.1 If one were to enter into a search for the causes and origins of behaviour as related by the rural blind, their families and the community from which they hail and take these as factual truth rather than indicative of perceptions values and attitudes of the individual and the group E I, one would get lost in a labrynth. The initial starting point of behaviour is not wholly relevant to the present evolved growth of behaviour predicament except in a purely physiological or medical field of events $S_o a h S_u$. It does not help to know that man sprung from a seed in the womb except that one realises he is grown into something entirely different. A person whose behaviour is anti social will not change his behaviour just because he is asked to be social. One does not become good by being told to be good. Even if he did realise that he was being anti social he would continue to be so unless the environment is changed, the group he mixes with and reinforces his behaviour is changed and he learns by example of "better" ways. Discoveries about the so called origins of psychological problems shed no light on how to cure one's behavioural responses. There are two ways of approaching a situation in which a person does not provide adequate or correct or useful information which helps the observer or teacher or counsellor plan his adjustment :

i) by further probing the hidden past pattern of events and basing therapy thereon

ii) by investigating the present pattern of events and basing therapy thereon.

16.2 A warm permissive noncritical social relationship in which the client reacts non-anxiously and restates repressed stimuli helps identify hidden stimuli that had an effect on his behaviour in the past. In the majority of cases it however transpires that what is being said is not what actually happened but what is believed to have happened. The original stimulus or trauma is difficult or impossible to isolate and extinguish.

16.3 Group therapy does often lead to a useful opening of the believed past. To begin with the person or the group will not recall aversive stimuli due to repression and will emit avoidance reactionary behaviour. As time goes by the person or group will act or say emotionally punishable things. This may be drawn out by encouraging them. They will talk about their friends, parents, love mates, homosexuality etc. What is being said may be transparent or opaque, overt or covert. Accuracy of the events being described is not of great importance as what is being said and the manner in which it is being said. Likes, dislikes, resultant on association and conditioning, the evoking of emotional behaviour singly or in groups and the transferance of such behaviour to someone helps in catharsis.

The environment should be non-punishing and extinguish conditioned aversive stimulus generated by earlier environments. Both the audience or the group or the physical surroundings need to be changed to start reorientation.

16.4 We record what a person believes to be his problem and then help him distinguish current stimuli from the old wherever this is possible. Avoidance behaviour must be extinguished before involvement and learning can start however, and it is often found that knowing of a problem intellectually does not in any manner affect the behaviour associated with it unless the emotional involvement is extinguished. An alternative approach is that the person be helped to find his own solution to his behavioural problems. Past expectancies some of which are frustrated are often connected with the present situations by a stimulus generalisation. One hated grown ups - therefore one hates the older teachers. Back reference to the original stimulus is therefore important if one can get at it.

16.5 If the original stimulus or the manner in which the person perceives his predicament are not investigatable behaviour can be changed from the present environmental predicament through the responses. Our primary objective is to see what can be done to modify the response ; one builds one's house by doing so; one tills the field by tilling it. One starts with a belief or perceptive idea that this is not possible - and finds it is. Responses are far more accessible to manipulation than original stimuli or perceptions i e E I. Another variable which can be manipulated is the present surroundings $S_g S_p S_d S_r$. A change of surroundings from a restricted environment i.e. home or institution, to a non-restricted environment i.e. fields of Phansa combined with a response centered reinforced training and a process of socialisation $S_p S_g$ - I_+ and independence of activity can completely alter the whole field of events "both past and present" to an extent in which the fantasy of the past is replaced by a realisation of the present.

16.6 In our work we observe and control response centred variables and such part of the surroundings which are within our means to change. Internal states i e E I need not be posited as causes but as perceptions. Our rationale should be to change the responses of the person seeking the most direct and simplest path. Distant and hidden causes, "personality" and other vague concepts are dropped.

16.7 The new recruit sets "goals for himself" such as achieving his independence, earning his own living, holding his own in society, being competent, mobile etc. One introduces new behaviour in the place of avoidance behaviour or escape. Reinforcement is structured accordingly by altering the surroundings in a stepwise manner by successive approximation. Change of habits, improvement in mobility, socialisation are all events which are directly opposed to avoidance and escape. The teachers themselves act as a reinforcement. One changes the stimulus events associated with aversive stimuli S_d, one changes the group S_c, to a sighted competitive one, one alters perceived values, one conditions the senses. Even the most stubborn aggressive person if allowed to adapt to his new circumstances will be changed and adjusted. He begins to control and master his surroundings S through his responses R. The perceptions i e E I automatically fall into place.

16.8 Responses are identified in terms of their consequences on the surroundings and the environment. It does not necessarily matter how a system is guided to its present state as long as the present state is correctly diagnosed. "Symptoms", "perceptions" and "responses" which are thought in terms of causes are not relevant as behaviour change depends upon changing present circumstances rather than analysing past circumstances.

16.9 The agent of change may be the person himself, the surroundings, his family, the group or the teacher. It is the present surroundings, perceptions, responses and emotional factors which influence the course of action one plans on adjustment. Our model helps us look at behaviour as a cycle and to control and regulate it at any point. The cycles and systems contained therein must be continuously stimulated during training to be maintained in a state of dynamic change as they would otherwise become fixed. It is the organisation of systems and cycles as one sees them that guides one how best to shape behaviour.

16.10 Our model shows a number of cycles superimposed diagramatically. The action of one cycle may be vitiated because of the interference from another e.g. the self concept may be severally affected due to a lack of mobility. A negative reinforcement or aversive stimulus in one cycle i.e. hard labour in a sheltered workshop, may on the other hand be a positive reinforcer in another i.e. hard labour in open fields reinforced by reward and encouragement. The habit or repetitive memory pattern in one cycle may affect the freedom of growth in evolution or amplification, or deviation in a second. Information which helps focus the

attention of the teacher and counsellor on these types of patterns is far more relevant to changing behaviour than searching for the origin of problems which may be wholly mythological and opaque.

16.11 Elements of one cycle may be elements of another set of cycles which may have conflicting responses. The ability to understand and predict behaviour is therefore not adequate or satisfactory from the point of view of reinforcement or aversive stimuli alone. This is clearly seen in the reaction of a receiver in the acceptance of a gift. If the receiver is handicapped he may despise the giver.

16.12 Cyclic behaviour as represented in our model also helps explain the cumulation of effects and the gradual recession of causes; the reinforcement responses and perceptions following each other cyclically. The sum total of behaviour in a system at any one time may be likened to a wave of patterns analysed by a Fourier theorem. The change in the pattern of the wave continuum consists of the frequency and intensity of the events in each cycle. To be able to learn new forms of behaviour one must be able to vary the frequency and intensity of various cycles after defining the role they play in the total behavioural predicament. To alter behaviour a cycle is entered and changed as close as possible to the point where the desired change will have the maximum effect. One can change the response, the emotional continuum, the surroundings, the reinforcement pattern. One controls the effect. One moves directly to that element of the cycle which is significant in maintaining the cycle and inserts a change therein. Take a typical situation from a blind person's life, who has never been taught mobility. The harder he tries the more difficult it becomes. One introduces training, a programme of instruction to overcome the block of random responses which are not reinforced. The cycle a h ie r slowly evolves into a new pattern with the steering response 'R' and reinforcement 'S_r' become paramount control factors. The pattern of reinforcement as interpreted in the cycle would be "the more one accomplishes the greater the mobility skills developed and the more the striving to reach higher goals." In the converse situation a vicious circle results in failure and regression.

16.13 In attacking behavioural change we draw up a schedule to eliminate avoidance escape behaviour R_- and negative willed responses W_-. We shape behaviour by reinforcement. We control emotion by work, yogic exercises

and aesthetic pastimes. We provide goals, needs, values and attitudes. We build up the self concept in terms of the person and the group. All this is done irrespective of the person's own perceptions of suffering at the hands of society or the family or blindness or due to his own habits and feelings. Structured therapy interferes with avoidance responses R and negative volition W_{-}. A deliberate attempt is made to introduce new behaviour in completely changed surroundings both physical and social in the guise of training for agriculture. Schedules for training incorporate schedules for behaviour adjustment. In determining the events which control and change behavioural patterns one in every case marks out the objective . One defines the system of unwanted behaviour and the alternative. One determines what type of behaviour is to be blocked and what other behaviour is to be reinforced. One determines the factors, the relationships of factors, the training that will change habits and instal new ones and the surroundings which will result in new values a positive self concept and group concept.

DIAGNOSIS

17.1 Having described the structure of systems and cycles which may be used to conceptualise behaviour, we now proceed to a method whereby we can locate the elements of the model to establish those elements which play a predominant role or occupy crucial positions of influence on behaviour.

17.2 Recapitulating

a) we described how events could be grouped under heads such as the "surroundings", the "senses and perceptions", the "regulatory responses", "activation syndromes" etc. This helped us in focussing our attention on certain areas of a behaviour in terms of events and determining WHAT we were observing. These events are to be assessed and changes made wherever possible to alter the total network.

b) we describe how events could be linked together in systems and further into networks of cycles.This helped us in determining HOW events could be related in lawful and probable manner both functionally and structurally.

c) we explained the meaning of the word dimension as it applied to physical and psychological events, systems or cycles. A dimension was described as a factor by which the magnitude, quality, values, attitudes, roles or other subsidiary factors could be related to each other and measured and scaled.

d) it was explained that dimensions could be physical, qualitative, evaluative, and attitudinal. Whatever scale or rating, was used by the observer, the dimensions would be affect by WHEN and WHERE the events under observation took place such as the societal, economic and geographic conditions or settings under which the events took place.

17.3 Diagnosis may be termed

a) the recognition of dimensions which could be used to measure events in the surroundings, the responses, the perceptions, the emotions

b) the recognition of dimensions which measure events in systems and cycles.

c) the structurising of events in systems and cycles from the inter-relations of dimensions

Having diagnosed or recognised the structures that face us, we attempt to control and alter or reorganise the systems and cycles by introducing changes of critical events in the surroundings, the responses and, the emotions and perceptions. Perceptions once altered, automatically tend to catalyse changes in behaviour. We observe CONDITION 1 and alter it to CONDITION 2.

17.4 The observer asks himself questions; probes the perso with questions to ascertain verbal meanings and values, creates group situations to observe roles and attitudes. He works through case studies, training records and responses to situatio . He attempts to define dimensions or scales to help him measure one or more aspects of the network, the product of psychobiologic l and socioeconomic events. He may study the dimensions associated with the events in the surroundings and relate them to the perceptions. He may fashion dimensions to measure cyclic networks of traits and habits. He may use one method of investigation, say a medical examination, to determine factors affecting the organisms state of health. He may use quite another, say an observation of verbal responses or non-verbal responses to determine bipolar or scalar dimensions such as security/insecurity introversion/exteroversion, fortune/misfortune, intelligence etc. He may make an effort to apply performance tests or aptitude educational achievement and personality tests. He may wish to devise scales for traits such as tact, generosity, leadership, creativeness, resourcefulness, honesty etc. etc.

17.5 Whatever is done the fundamental need is to determine how such information as is gathered through any rating, scale, test or questionnaire, helps diagnose the behavioural predicament. We are interested in discovering how the various dimensions representing relationships between actual living events can be used to throw light on the mechanisms in our model. To the above end, we have tentatively selected dimensions which would need to be scaled to give the observer an indication of the systems and structures prevalent. Due to the variability of the sample material and the dynamic and changing nature of the network the standardisation of these questions and thepreparation of scales is perhaps not possible. The investigator would have to devise his questions extempore. The reliability of the questions being asked could perhaps be tested under control conditions in time if suitably uniform samples of the population were available. The validity of the questions being asked and the observations being made can only be determined by fitting such observations into the model and ascertaining whether the results fit real life situations.

17.6 A number of dimensions or factors have been listed in the following inventories. For our purposes, these factors and dimensions are to be scaled so as to fit in and give a structure to the network model and the processes therein observed. For example, a person may be found to be extremely anxious a- and this may result in response R+. Alternatively, a person may be found to be anxious a- and this may result in response R-. A person may be anxious a- and this may result in a depressive state where R is blocked and a cycle of behaviour where control is lost and hunting responses h are observed. It, therefore, follows that one so chooses one's dimensions that the interplay of events is structurised into a meaningful pattern. Unless one does this, the ALTERATION OF BEHAVIOUR may prove difficult. We would specify

for example that we are focussing our attention system

S_p Sg - I

Sp · - I

the negative self conception whose dimensions are attitudes or roles such as suffering, inferiority, helplessness. It may be our aim to alter this relationship to S_p +I which is a positive self concept and we may endeavour to change or adjust relationships, systems and cycles in such a manner that this is possible. The ability to effect such a change is however not necessarily involved in the relationshipto be changed itself or in the roles and attitudes which represent it. Turning our attention to other parts of our network we may find that the negative self concept may be an end product of a rather complex set of cycles arising out of the suddenonset of blindness which has resulted in a physical block to the senses and external environment with a concomitant disorganisation in the regulating response r. Hunting, erratic or random responses may have been observed with the onset of blindness. Negative reinforcement or a punishment or inimical group reactions of distress could have resulted in an avoidance response such as withdrawal R-. Withdrawal, as a result of being unable to adequately regulate hunting responses to an extent which would result in adequate mobility, could possibly have resulted in the elicitation of an activation syndrome "a" and an emotion such as fear or a continuing predispositional anxiety S E a R. An emotional predisposition such as anxiety could further result in a breakdown of cyclic relationships resulting in a negative self concept.

R Sg I

Sp Sg -I

S -I

DIMENSIONAL ANALYSIS

18.1 The purpose of a dimensional analysis is

a) to locate dimensions

b) to determine which dimensions apply to particular person and group

c) to formulate events, systems and cycles based on the findings in each dimension by

i) relating dimensions to possible areas of events classified as $S_o S_u S_c S_p S_d S_g S_p$ a a± h r R± W± ie E± ±E I± ± I

ii) relating dimensions to possible systems and cycles eg. $S_p S_g$ I- or S_d -E R- or ei a_r etc.

d) to locate such critical events as need to be altered, replaced, modified, eliminated.

e) to locate such critical systems and cycles as need to be altered, replaced, modified, eliminated

18.2 When building a house I need stones, glass, steel, wood, sand, cement, tiles. These are the dimensions. If the cement is old, the wood rotten, the sand full of salt, the house will collapse. I then structurise various areas of events: "things" such as the walls, the doors, the windoews, the floor, the ceiling, the stove, the name board. A number of fundamental dimensions may be involved in each e.g. a window is made from wood and glass. I must locate the dimensions and build them into a structure of events. I must locate the events and build them into the dimensions. The dimensions are meaningless or useless unless I can use them to build the bits and pieces of my house. They have no significance on their own. It is the functional relationship between events and the structures they are incorporated in that gives a "dimension" to the events.

18.3 Assume we wish to observe S_o. We would have a number of dimensions : chronological age, height, weight, fitness, disease bodily attrition and deformity etc. If we wished to observe ie we would perhaps frame dimensions such as degree of blindness and auditory sensitivity. If one wished to have a look at r c.. would think in terms of "degree of motor coordination". A sensitivity to changes in the surroundings could be measured by measuring the activation syndrome a. If one wished to measure a dimension such as emotional balance one would have to see it as a relationship between the senses ie the responses Rr and the activation syndrome a. When measuring meanings and values a relationship between responses R, reinforcement and discriminatory stimuli $S_d S_r$ may obtain. Finally attitudes and roles are a matter of the interaction between person and the group resulting in a self concept I.

18.4 The language we use has evolved a number of words which could be used to express dimensions. Words should, however, not be confused with the events they purport to measure. In using words there will always remain an ambiguity because words change their meanings and connotations according to the context in which they are used. In framing dimensions of meaning and value, attitude and role we would always keep this in mind and reduce ambiguity wherever possible by fixing the meaning by the normal usage of the word or better still by pairing it with another complementary word. Here are some examples of dimensions expressed as word pairs :

Memory - forgetting i.e. capacity to retain learnt information as a function of time

Memory - extinction i.e. capacity to retain learnt information as a function of reinforcement rate

Memory - loss of memory i.e. capacity to retain learnt information as a function of emotional or somatic disturbance.

The word memory could have a number of connotations. So we pair it with another word to give it a relationship with other events.

INVENTORIES

A number of dimensions have been listed in the following inventories and notes appended. Such dimensions which are applicable to a person and his group members can be used to locate and structurise events in the network. The dimensions in the inventories are broadly grouped but have also been deliberately randomised to avoid a halo effect and enable the investigator to cross check observations.

Dimensions may seem to have been "repeated". The repetition in such cases would fall under different areas of events. For example, "blindness" has a meaning; "blindness" is also a role or an attitude. A number of dimensions provided in the lists may prove redundant on extended investigation. If the contents of any one dimension are found for all intents and purposes to include or cover the contents of another to an extent that would enable structurization of the network this could be eliminated.

Some inventories, for example the psychosomatic can largely be filled in by observation during training. Others, for example Family structure by case studies with family members. Still others covering roles, attitudes and meanings through both verbal enquiry and non-verbal observation.

After ascertaining the dimensions, in each case, diagnose relationships between events in systems and cycles - e.g. affection is S_{p}^{g} I+ or, a restricted sexual relationship is S_{p}^{g} -I or, a S_{d} limited mobility is -E R- etc. Piece these relationships together into a pattern to build up your network.

Discover critical events, systems, cycles which need alteration. Programme alteration through counselling and training. The change in the dimensions or time lapse protocol can be recorded on the same sheets in conjunction with the job capability sheets and task sheets.

Medical Inventory

The functioning of the organism affects the drive cycle S_o a h S_u. An investigation of the medical history and symptoms would throw some light on the state of health and possible organic limitations affecting the drive cycle. The whole activity of the network as it relates to the person, his reactions, reflexes, conditioning etc. eventually depend on the basic state of the organism's health.

i) Age
ii) Age at which blindness occured
iii) Period of blindness
iv) Sex
v) Marital status
vi) Children
vii) Height
viii) Weight
ix) Optholmological factors affecting blindness
Congenital
inherited
accidental
eye disease
other disease or infection
x) Blood group
xi) Blood pressure
xii) Temperature
xiii) Pulse
xiv) Urine stool
xv) Sputum

History of previous ailments and present ailments

Operations
Head injuries
Back ache
Chest pain
Ear ache
Substernal pain
Broken bones
Back injuries
Joint pains
Sinus pain
Cramps
Limb pain
Head ache
Hernie
Abdominal pain
Asthma
Nocturnal breathlessness
Dyspnoea
Throbbing
Palpitation
Free breath
Diet
Appetite
Digestion
Thirst
Bowels
Small pox
Diabetes
Typhoid
Allergies
Sore throats
Oedema
ENT disease
Fever
Jaundice
Coughs or colds
Hoarseness
Abortions
Vaginal discharge
Skin disease
Cholera
Twitches & mannerisms
Rigor
T.B.
V.D.
Beverages
Alcohol
Drugs
Tobacco
Glaucoma
Sore eyes
Visual disturbance
Cataract
Trachoma
Conjunctivitis
Epistaxis
Forgetfulness
Dizziness
Unconciousness
Tremors
Convulsions
Hallucination
Vertigo
Sleep
Diuresis
Nausea
Vomiting
Dysentry
Diarrhoea
Haematemesis
Haemoptysis
Dysphagia
Stamina
Wasting
Loss in weight

Medical Inventory (cont)

Family History

Father	Mother
Brothers	Sisters
Wife/Husband	Children

DIAGN

Sensory Inventory

The functioning of the organs such as the sight, audition, and tactile sensitivity "ie" are crucial to certain aspects of a person's development. The sensitivity of both proprioceptive and exteroceptive perceptors need to be assessed. Medical reports from experts should, wherever possible, be obtained.

Dimension	Remarks
Vision is of no use in a working situation	
Vision is of partial use in a working situation	
a) Tactual information not distinguished from visual	
b) Vision supplemented by touch	
c) Visual shapes of objects distinguishable	
d) Visual work space orientation possible	
Vision enables reading of large print close to eyes	
Vision enables reading of normal print	
Visual acuity : distance/angle/ Snellen	
Colour blindness/myopia/astigmatic	
Tuning fork auditory frequency	
Auditory sensitivity of no use- of practical use in mobility	
Tactile sensitivity	
a) of use-no use in mobility	
b) of use-of no use in a working situation	
c) of use-of no use in recognising texture	
d) response to pinpricks, numbness and sensitivity in various areas	
Olfactory and taste sensitivity	
a) of use-of no use in identifying smells	
b) of use-of no use in identifying tastes	
Major motor posture coordination high/low	
Manual coordination and dexterity high/low	
Motor control/movement control high/low	

Pyschological Inventory

This inventory gives one an insight into the functioning of the emotions, the activity syndrome and the effect of these on involuntary, gearing, steering and volitionary responses. It represents the total internal environment which conditions and in turn is conditioned by the external environment. What is observed are the responses and changes and the coordination and control of the network as also learning and performance capability.

Learning relates to both the mobility cycle a ei h r as modified by the basic drive cycle S_a h S_u as also the discriminatory reinforcement cycles S_dE R°.

Performance is related to learning but, is influenced by the roles and attitudes, the sympathy and contagion of the group surroundings. For example, dependability, initiative and willingness etc. are socialisation phenomena.

Psychological response dimensions, learning and performance ratings need close specification to be reliable. Our present purpose would, however, adequately be served by the following rating : A above average, B average, C below average, H high frequency of behaviour, L low frequency of behaviour.

Dimension	Rating	Dimension	Rating
Somatic and Metabolic			
Loss of memory for particular events		High blood pressure	
Insensibility to sexual stimuli		Sleeplessness	
Loss of appetite		Teeth trouble	
Speechlessness		Anemia	
Oscillation of mood		Toxicity	
Intestinal disorders		Depression	
Involuntary urination		Body pain	
Thyroid or glandular disorder		Twitching	
Nervous fatigue		Fainting spells	
Strain anxiety		**Temperament & Traits**	
Hysteric nervous uncontrolled activity		Restlesness	
Neurésthenia		Activity	
Reduction in weight		Adaptability	
Coughs and colds		Emotional sensitivity	
Tonsilitis		Emotional balance	
Asthma		Avoidance behaviour	
Skin infection and allergies		Escape behaviour	
		Frustration	
		Tolerance	
		Fixation	

Dimension	Rating	Dimension	Rating
Temperament & traits (contd.)			
Reaction		Manias	
Repression		Exaggeration of constitutional problems	
Addiction		Amplification of self	
Rationalization		Self centered	
Aggression		Illogical	
Withdrawal		Feelings of grandeur	
Conflict		Extreme prejudice	
Anxiety		Slow defence reaction	
Introversion		Submission to authority	
Talkativeness		Lively emotion	
Development		Clear thinking	
Extreme viewpoints		Active	
Fear of failure		Willing	
Avoidance of Anxiety		Rationalization of inadequacy as physical defect	
Unitidy			
Mental inertia		Distortion of constitutional problems	
Impulsive		Absence of self concept	
Stereotype		Conflict of thought or action	
Incoherent in language		Regression	
Rambling		Memory falsified	
Echolalia		Lack of verbal cohesion	
Echopraxia		Lack of drive	
Mute Apathy		Migratory need for change in surroundings	
Indifference		Sedentary need for no change in surroundings	
Avoidance of new situation		Mannerisms	
Feeling of mistreatment		Awkwardness	
Feeling of being talked about		Blindisms	
Feeling of being under the influence of another person		Intrapunitive responses	
Audial haptic sensory hallucination			
Somatic hallucination			
Phantasy and daydreaming			
Autistic thoughts			
Phobias			
Flights of ideas			
Distraction from attention			
Hyperactive			
Retardation of ideas			
Depressed activity			
Lassitude			

Learning and performance

	Dimension	Rating
I	Single and multiple response sensory motor conditioning	
	Dimensional coordination	
	Topographical orientation	
	motor posture	
	manual dexterity	
	mechanical aptitude	
	construction aptitude	
	measurement	
	mobility	
	reinforcement of needs	
II	Intelligence sensory verbal conditioning	
	concept formation	
	words/sensual stimuli	
	arithmatic	
	accounts	
	braille	
	speech and verbal expression	
	written expression	
	perceiving similarities (generalisation)	
	perceiving differences (differentiation)	
	perceiving relationships (structurisation)	
	rules and regulations	
	trends	
	common elements	
	classes	
	influences	
	syllogisms	
	plans	
	memory recall	
	teacher guidance	
	reinforcement of needs	
III	Multiple responses and Intelligence conditioning	
	hygiene	
	home work	
	medical care and safety	
	agriculture skills	
	craft skills	
	animal husbandry skills	

Dimensions	Rating
shop/commercial skills	
simple managerial skills	
work incentives and goals	
motivation and aspiration	
IV Intelligence and social conditioning	
dependability	
initiative	
willingness	
communicative capacity	
cooperative disposition / sighted/blind	
leadership	
group team work	
efficiency	
thrift	
ambition	
practical solution to everyday problems	
judgement	
independent activity	
discipline	
competitiveness	
motivation	
aesthetic development	
recreational development	
successful resettlement	
aspiration	
reinforcement goals	
task standard realistic	
social integration	

DIAGNOSIS :

Family educational and work history before and after blindness

An effort has been made to relate the surroundings to the period of growth and assess whether opportunities for learning and development have been provided during the correct period of growth. Where this has not been possible there may have been an arrest in development and reorganisation of behaviour.

Dimension	Age period from	Age period to	Remarks
Sighted			
Blind			
Mother			
accepting			
rejecting			
Family			
accepting			
rejecting			
Education provided			
at home			
residential			
segregated			
integrated			
blind home			
educational class attained			
Institutional history			
institution 1			
institution 2			
institution 3			
institutional security			
institutional insecurity			
Work history			
work 1			
work 2			
work 3			
job stability			
job instability			
Predominant relationships			
family members			
age mates			
teachers			
work peers			

Family educational and work history before and after blindness (contd.)

Dimension	Age period from	to	Remarks
Broken relationships			
age mates			
peers			
friends			
Environs			
limited mobility and physical freedom			
limited emotional contact and freedom			
limited social contact and freedom			
Motivation			
creative and imaginative freedom			
intellectual freedom			
emotional freedom			
Reinforcement			
affection and warmth			
rewards			
coersion			
criticism			
punishment			
comparison with sighted peers			
Uniform living schedules			
Erratic living schedules			

DIAGNOSIS:

Sexual development inventory

Sex is very much a part of the growth, maturation and socialization process. Purely physiological sex is of no consequence to our studies. Physiological sex is a drive, like hunger, a need for stimulation and change. It is one of the basic needs. Sexual behaviour is mainly resultant on opportunities, restrictions, meanings, roles and attitudes, imposed upon the network.

Dimension	Remarks
1 Age at which blindness occurred child/adolescent/adult	
2 a) Restriction of physical surroundings so as to limit sex to self stimulation- High/Low	
b) Restriction of group surroundings so as to limit sensory contact to siblings- High/Low	
3 Which member of the family was a sexual concurrent?	
4 Was there an emotional attachment with this member?	
5 What proportion of the following sexual behaviour is presently manifest?	

Self stimulation	%
Masturbation	%
Phantasy	%
Homosexual	%
Heterosexual	%
Marital	%
	100%

6 What proportion of the following dimensions may have played a part in sexual development?

physical restrictions, home/institution	%
family restrictions	%
segregated peer and teacher relationships	%
unsegregated peer and teacher relationships	%
social or cast restrictions	%
	100%

Sex development inventory (contd.)

Dimension	Remarks
7 What relationships have existed between the person and others of opposite sex own sex mother father brothers sisters teachers self Which of these relationships have influenced and guided his sexual behaviour?	
8 Which of the following have affected sexual behaviour a conflict of values roles attitudes frustrated relationships needs goals	

DIAGNOSIS:

Family Structure

	Dimension	Remarks
1	Is the family a viable unitary system?	
2	Does the family provide for its own needs economic educational welfare	
3	Does the family depend on any societal group	
4	Is the family organization joint extended	
5	Intra familial reciprocal relationships with reference to S_p - father, mother, sisters brothers, uncles, aunts, cousins a) complimentary b) expectatory c) give and take d) obligations & rights e) severed relationships f) attraction, repulsion g) superior subordinate h) dominant - subserviant i) prestige j) traditional - breakaway k) acceptance, rejection l) persuasive m) bargaining n) concessions & advantages	
6	Determine receiprocal relationships in terms of S_p mother, sisters, uncles, aunts, cousins a) dispossession of property b) disheritance c) disenfranchisement d) unfulfilled expectations	
7	What customs, usages & rituals draw the member into the family circle drive him out of family circle	

Family structure (contd.)

	Dimension	Remarks
8	a) State critical relations in terms of Father, mother and other family members or groups	
	b) Which of them are agents best suited to provide theraupetic change?	

Sympathy Inventory - Attitudes and Roles

The sympathetic roles and attitudes of the group, the father, the mother, the brothers and the village community, towards S_p may be assessed. The interaction between $S_p S_g$ gives rise to group concepts. Sympathy has been defined as "the responses of the group reinforcing the responses of the person R, i.e. $R\ S_g I_+$ " and this relationship should be kept in mind and analysed by assessing the polarity of the dimensions mentioned below :

Dimension	Remarks
Sympathetic/Antagonistic	
Intellectually sympathetic/ emotionally sympathetic	
Sharing loss/aloof	
Affectionate/dutiful	
Patient/impatient	
Spontaneous help/preplanned assistance	
Encouragement to self help/ insistence on assistance	
Spontaneous interest/cultural curiosity	
Introspective/advised by others	
Retrospective/hope in the future	
Sincere/deceitful	
Non-intrusive/interfering	
Accepting/non-accepting	
Ready to help/assist whenever possible	
Verbal expressions of sympathy/acts of sympathy	
Assurances/performances	
Display of concern/reticent	
Persistent/casual	
Benevolent/miserly	
affection/over protection	
affection/possessiveness	
affection/avoidance	
affection/pity	

Sympathy Inventory (cont)

Dimension	Remarks
Cold/warm	
Unwanted/wanted	
Ingroup/outcast	
love/hate	
Reject/accept	
Despising/affectionate	
Belonging/lonesome	
Protected/neglected	
Solicitous/unconcerned	
Praiseworthy/piteous	
Come my way/go to hell	
Protection/neglect	
Trusting/suspicious	
Understood/misunderstood	
Credible/make believe	
Friend/foe	
Helpless/helpful	
Don't care/concerned	
Devotion/indifference	
Uncooperative/cooperative	
Governing/subservient	
Influential/coersive	
Carefor self/cared for	
Encouraging/discouraging	
Persuasive/dissuasive	
Partial/impartial	
Recognise/ignore	

Contagion inventory : Roles and attitudes

Roles and attitudes constitute the interaction of the group and the person $S_p S_g$ to result in self concepts and group concepts +I and I+. Complementary dimensions need to be devised. Contagious interaction between the person, his father, mother, brothers, sisters, the extended family, the community and society at large may be assessed.

Each dimension needs to be framed to relate to the person or members of the group. A column has been left to include remarks on the type of contagious influence the group member/members may have on the person or, the person on the group. Concentrate on roles and attitudes of the person himself and those members of the group whom you feel are key agents of influence or, of change.

Dimension	Remarks
inferior - superior	
tactful - tactless	
safe - dangerous	
serving - self employed	
threatened - secure	
secure - insecure	
purposeful - purposeless	
happy go lucky - disgruntled	
free - bound	
mourning - out of mourning	
sad - happy	
preoccupation with loss - occupation with gain	
be himself - be like others	
non acceptance of norms - acceptance of norms	
self assertion - self negation	
self conscious - unaffected	
self deception - trutnful	
credulous - suspecting	
self educated - formally educated	
self determining - subservient	
self important - humble	
self indulgent - temperant al	
self interest - self denial	
self possessed - foolish	
self reliant - irresolute	
self reproach - courage	
self respect - self abasement	
self restraint - impetous	
self sacrifice - egoistic	
self confident - diffident	
believer - sceptic	
conceited - modest	
preoccupation with loss - avoidance of loss	

Dimension	Remarks
fit - unfit	
acquaintance - stranger	
credible - make believe	
apparent adjustment - non adjustment	
suffering - enduring	
content - discontent	
independent - dependent	
helpless - helpful	
gay - sorrowful	
accept limitations - not accept limitations	
taking assistance when required - not taking assistance when required	
persevere - give up	
persist - desist	
resolute - vacilating	
harmony - conflict	
stay at home - go to institution	
earn - beg	
possessive - give away	
search for a cure - live with limitations	
pride - shame	
innocence - guilt	
dominant - submissive	
avoids fights - enters fights	
meaningful - meaningless	
defiant - complaint	
active - reactive	
leader - follower	
cunning - straight	
shrewd - gullible	
thrifty - extravagent	
one track - exploratory	
competitive - resigned	
socialized - individual	
sensitive - thick skinned	
masculine - feminine	
brutal - gentle	
courageous - cowardly	
young - old	
superstitious - rational	
jealous - admiring	
deceitful - truthful	
honourable - dishonourable	
righteous - wronged	
belittled - aggrandised	
scornful - appreciative	
faithful - unfaithful	
loyal - traitorous	

Dimensions	Remarks
sentimental - matter of fact	
intelligent - dull	
wise - foolish	
gifted - untalented	
get ahead - stay where one is	
dynamic - sedentary	
aggressive - docile	
creative - destructive	
childish - grown up	
natural - superficial	
playful - serious	
daring - afraid	
humour regarding self - humourless regarding self	
popular - unpopular	
well dressed - shabby	
enthusiastic - listless	
happy - unhappy	
humourless jokes - humourous jokes	
assured - shy	
avoid - attract	
involved - separate	
wish to help - ought to help	
enjoys family contact - avoids	
shares common interest - no common interest	
demands special privileges - no such expectations	
training is valueless - a cure all	

DIAGNOSIS :

Meanings & value inventory

Meanings and values represent discriminatory stimuli events in the surroundings S_d. These discriminatory events control the perceptions R and depending on whether they occurred during periods of positive reinforcement (reward), or negative reinforcement (punishment) would be either pleasant or unpleasant , like or dislike, aversive or attractive. Wherever aversive stimuli give rise to avoidance responses these could be eliminated or reinforced with a new set of stimuli. To change the dimensions of values and meanings one would need to alter perceptions by altering responses and reinforcing such altered responses.

Dimension	Remarks
what does blindness mean ?	
a personality defect	
- a bodily disfigurement	
a personal characteristic	
- an asset	
a comparative value	
- a loss of sight once possessed	
an essential value	
- a non essential value	
a social status defect	
- creating a new social role	
a single characteristic which affects all others	
- a single characteristic among a number of others which mean as much and more	
a loss of identity	
- a search for a new self concept	
a non acceptance of loss	
- an acceptance of loss	
a permanent loss	
- a temporary loss	
a loss of opportunities	
- a setting of new goals	
a lack of mobility	
- mobility	
a lack of opportunity	
- limited opportunity	
a devaluation	
- a revaluation	
a deviancy	
- normalcy	
a dependence	
- independence	
a loss of faith	
- gain in faith	

Dimension	Remarks
Likes, dislikes	
meeting people above station - below station	
children - grown ups	
rich - poor	
own sex - opposite sex	
own language - other languages	
blind - sighted	
Prefers to be associated with	
teachers - workers	
agriculturists - craftsmen	
criminals - saints	
drunks - teetotallers	
scientists - artists	
god fearing men - athiests	
Prefers	
city life - village life	
social life - family life	
institutional life - dependent life	
to live in the plains - on the hills	
to live in cool climate - warm climate	
to possess RCC house - mud hut	
radio - a musical instrument	
motor car - a bullock cart	
land - gold	
cattle - crops	
farm - commercial business	
tea - coffee	
cocacola - milk	
chappati - bread	
vegetables - meat	
tea - intoxicants	
beedi - cigarette	
cooked food - tinned food	
meal once a day - twice a day	
spiced food - unspiced food	
sweets - savouries	
Prefers friends who are	
well behaved - vulgar	
jovial - serious	
learned - practical	

Dimension	Remarks
Likes spare hours :	
full - empty	
active - idle	
with music - silence	
with others - alone	
visiting - staying at home	
movies - dramas	
working - rest	
sex - day dreaming	
reading - read to	
story telling - gossiping	
begging - earning	
gamble - sport	
Prefers to	
keep clean - remain dirty	
change clothes - use same clothes	
use soap for bath - - water only	
wash hands before meals - leave them dirty	
blow nose with kerchief - with fingers	
Prefers	
adult franchise - no franchise	
democracy - dictatorship	
kingship - peoples' government	
Job preferences	
farmer	
dairyman	
poultryman	
tradesman	
labourer	
shop keeper	
clerk	
philosopher	
musician	
artist	
teacher	
pundit (priest)	
political leader	
telephone operator	
typist	
mechanic	

Dimension	Remarks
Academic subject preference	
history	
science	
mathematics	
arts	
music	
languages	
physical training	
geography	
religion	
medicine	
What does life mean	
not worth living	
- worth living	
fruitless - fruitful	
boredom - activity	
monotony - variety	
waiting - travelling	
passage of time	
- stoppage of time	
slavery - freedom	
misfortune - fortune	
suffering - painlessness	
mourning - out of mourning	
sorrow - happiness	
debtor - creditor	
insecurity - security	
self sufficiency	
- dependence	
creation - destruction	
work - charity	
duty - rights	
family - celibacy	
challenge - submission	
ugliness - beauty	
certainty - uncertainty	
faith - disillusion	
hope - hopeless	
absurd - meaningful	
mystery - obvious	
free choice - tyranny	
one track - many paths	
What value does work have	
routine - variety	
quantity - quality	
self contribution	
- contribution to community	

Dimension	Remarks
lack of handicap	
- overcoming of handicap	
self status	
- value to others	
work - idleness	
enjoyment - drugery	
reward - punishment	
mastery over environment	
- enslavement to environment	
skill - no skill	
competence - impotence	
achievement - survival	
dependence - independence	
self sufficiency	
- dependency	
reward in cash	
- reward in kind	
non acceptance of blindness	
- acceptance of blindness	
overcome physical handicap	
- submit to physical handicap	
a job well done is its own r.ward - a job is a means to an end	
devaluation - revaluation	
overcome suffering	
- succumbing to suffering	
distraction - concentration	
respect from others	
- respect to others	
compensating for loss	
- overcoming loss	
disability - ability	

What attracts / repulses

Dimension	Remarks	Dimension	Remarks
fragrance		religious music	
mud		pain	
leaves		hissing sounds	
sleep		fast music	
motor cars		liquor	
flowers		parents	
smells		prostitutes	
sea		irregular shapes	
water		birds	
books		dogs	
walls		mountains	
braille		wind in trees	
heat		classical music	
sound of insects		leisure	

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Dimension	Remarks	Dimension	Remarks
truth		exertion	
anxiety		variety	
cleanliness		ugliness	
light		excretion	
farm		bitterness	
asses		pigs	
fish		snakes	
vulgar words		harijans	
fatigue		love	
medicines		haste	
difficult situations		uncleanliness	
pungent		life	
rats		pots	
rooms		silence	
sweetness		soft voice	
symmetry		sourness	
motion		angularity	
cold		vegetables	
rain		warmth	
vibration		manure	
crops		sweat	
children		noise	
blood		darkness	
disease		excitement	
lizards		adventure	
danger		problems	
falsehoods		colours	
death			

Do you believe in

prophecies	omens
ghosts	spirits
magic	revengeful gods
helpful gods	praying in difficulties
one god	doing pooja at the temple
asking god for wealth	god's merciful
doing pooja at home	god's unapproachability
god's mystery	revenge
might is right	
dishonesty pays	
self indulgence	

Dimension	Remarks
What does money mean	
joy - sorrow	
family troubles - family harmony	
peace of mind - worry	
possessions - status	
power - weakness	
freedom - slavery	
authority - obligation	
credit - liability	
root of all evil - source of all good	
comfort - necessities	
possessions - knowledge	
fortune - misfortune	
Would you	
lie as everybody lies	
lie to save your life	
be attracted to the opposite sex	
kill to eat	
steal to feed your family	
kill for sport	
steal as a profession	
show respect to your parents	
show affection to your parents	
argue with your parents	
become religious when everything else fails	
cry when bitten	
start throwing stones at the government to get your rights	
obey the orders of your leader	
run for life in an earth quake	
fight for rights by rioting	
make the trains run on time if they don't	
flatter where it pays	
injure another in war	
mock when you are made to	
swear if others don't mind	
commit suicide when life seems futile	
masturbate as others must	
be corrupt because your colleagues are	
drink with your friends	
go to prostitutes to become manly	
avoid work if you can help it	

Dimension | Remarks

be extravagent like a
film star
hate men of despicable
character
hang a murderer
go on strike with others

What is destiny?

fatalism - free choice
uncertainty - certainty
lack of self confidence
- confidence
lack of comprehension
- realization
deprivation at every turn
- gifts and denials
starvation - sufficiency
rejection - acceptance
lack of love - love
to be unwanted - wanted
death - life
uncontrollable events
- controllable events
inability to participate
- participation
unavailability of jobs
- patience
famine - plenty
blindness - sight
valueless - meaningful
caste stigma - be what one is

DIAGNOSIS:

Meaning and value inventory -
Circumstances surrounding the onset of blindness

Dimension	Remarks
a) Is it remembered	
how did it happen ?	
when did it happen?	
slowly or fast?	
why did it happen?	
what was thought while it was happening?	
what was felt when it was all over?	
why was it not cured?	
whose fault was it?	
b) The person himself/mother, father, sisters, brothers, siblings and community believe the blind	
to be a liability	
to be wards of society	
to need asylum	
should beg	
be maintained by donations	
be maintained by charitable grants	
be maintained in an institution	
be maintained in a home	
are equal members of society	
to be a handicapped group	
to be a deviant group	
to be a defective group	
to be a competent group who have equal rights and opportunities for jobs	
to be a special group who should have special work in sheltered workshops	
to be cursed	
to have been struck by fate	
to be punished for inherited acts their own acts	
to transmit blindness by touch	
are untouchable	
must not fight their fate	

Dimension	Remarks
can only be cured by magic homeopathy ayurveda allopathy religion faith	
are unclean	
to be mentally deficient	
to be deaf	
should be talked to loudly	
have super acute senses	
have facial vision	
cannot talk properly	
see darkness	
cannot be happy or cheerful	
can do simple things only	
can work wonders	
are objects of curiosity	
are to be talked to questioned stared at	
are to be helped even though help is not asked for	
need to be given money even though not begging	
should form fraternities	
should live in schools and homes	
should enjoy special privileges legislation assistance	
should mix freely and be integrated in society	
blindness is better than/worse than shortness	
bad breath	
lameness	
impotency	
madness	
squint	
deformity	
deafness	
dumbness	
paralysis	

Dimension	Remarks
c) The family feel the blind	
are their responsibility	
are their anxiety	
are a godsend to express their need to care for another	
are their headache	
are a nuisance	
should be kept out of the way	
should be disciplined and punished	
cannot share human feelings	
cannot understand what is going on round them	
are a deprivation	
a source of insecurity	
are to be ashamed of	
are a moral binding	
are a cause of fatigue	
should be abandoned	
are a distress	
are a source of misunderstanding between other family members	
should be left to themselves	
go blind because of their own foolish acts	
take up all the family time while others are neglected	

Growth and Maturation Inventory

Growth is a progression of cycles. Processes are first coordinated in the drive cycle S_c a h S_u. The behaviour of the neonate shows hunting responses only. Gradually the regulatory responses r appear and are conditioned to the internal proprioceptive senses. So also the neonate begins to see or become conditioned to events with its exteroceptive senses. The ensuing cycles condition the senses : $S_c S_u$ ie r. Eventually the conditioned S_c surroundings play a major part in the sensed environment.

The next step is the "upbringing" of the child. The mother's contact, warmth and affection are crucial in the early stages. The family plays an important part in the formation of the value and meaning structures, the values and meanings having been first impressed through roles and attitudes, do's and don'ts. In the later years of adolescence, social, peer and other contacts begin to play a major role. The child is weaned from its mother, the adolescent separates out as an individual from the family, the adult grows into society and begins to live by his own volition having searched for and found the answer to the question "who am I", in his own surroundings and behaviour.

It seems reasonable to suppose that the growth or maturation of a person has an effect on almost every aspect of network. The behaviour of the person as observed is deeply embedded in the history of maturation. It is often impossible to probe the past but an attempt may be made in cases where the memory of the family and the person is reliably clear. Apart from the "information" gathered, the point of time at which the person went blind in a normal growth and maturation life, gives an indication of certain possible periods where behaviour may have been reorganised and growth affected. For example blindness may result in syndromes which interfere with "intelligence" or motive coordination or socialization. It may result in mental retardation. A mentally retarded person is one who is incapable of being taught to look after himself and who requires supervision, control and care for his own welfare and the welfare of the community. An arrested or incomplete growth before the age of 18 could result in mental retardation. For our purposes "intelligence, mental retardation" is the ability to learn. We assess this, to an extent, during training. The practical sense, adjustibility, intellective and emotional components, the reinforcement of the surroundings etc. all enter the field of events being observed or measured.

The enclosed growth/maturation scale will help the observer isolate, very approximately, where the blind person was located before and after his rehabilitation training. The dimensions on the scale would be affected by those of all the other inventories which would provide indications of maturation. 13 levels of cumulative growth and maturation have been shown.

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MATURATION SCALE

Goals and needs inventory

Observe the network from the point of view of goal and need directed behaviour.

Look at the surroundings. This part of field of events can to some extent be manipulated to control the network of paths which result in goal directed responses. GOALS can be defined for our purposes to be the social structures of events which motivate behaviour and which can be recognised by motivated responses to belonging to a certain group, to achieve standards set by the group, or to reach a status within the group, to seek the affection from the group, or to seek the security of the group. Goals can be constructed to reinforce and thereby motivate behaviour. Surroundings of reward and incentive can be built around a group. The surroundings can be modified and left "open" as against institutionalised or "circumscribed". This blind in open social surroundings can labour, work, learn and live with the sighted in complementary roles and be exposed to the hardships and realities of a competitive existence. The creation of goals catalyses the learning process and helps structurise the field to an extent that makes the learning process easier.

In addition to the formulation and creation of goals, i.e. structurising the social surroundings $S_p S_g S_d S_r$, a second form of recurrent cyclic behaviour can be introduced. In a situation where, as a result of learning or work, the fruits or results of any action are perceived as an achievement of goals, new goals set at altered levels of achievement may automatically evolve. The movement towards new goals when old ones have been achieved is known as ASPIRATION. Aspiration is a behavioural cycle or state where successful responses continue to be reinforced. Where reinforcement is low or inadequate, goals may remain unachieved. Where goals are not achieved, SUBSTITUTE GOALS evolve. Failure to achieve goals can result in avoidance responses known as inferiority, or compensatory, superiority complexes. Aspiration is therefore a syndrome used in understanding cycles of goal seeking. Where behaviour is inadequate or the goal unachievable, aspiration i.e. the cyclic recurrence of behaviour aimed at achievement of goals is extinguished. The goal structure becomes an aversive stimulus S_d -E and the response an avoidance R-. Inferiority or superiority seem to be a reaction R- to aversive stimuli conditioned by goals which are unattainable.

Goals and needs (contd.)

The field of events also determines the network of paths which result in responses directed towards NEEDS. Needs are physiological, organic or emotional structures which motivate an organism towards physical SATIATION or emotive SATISFACTION. Needs can be altered by conditioning the surroundings as also the emotions through training of responses R1 through successive approximations to new responses R2, alteration of mearning and value E1 to E2 etc.

It may be found that there is a conflict between satiation and satisfaction or between the satisfaction of needs and the achievement of goals: a hungry man will eat anything to satiate his hunger whether it satisfies him or not. So also a blind man who wishes to lead a lazy dependent life may satisfy his need and forego the goals of living an independent life in society. Decisions to guide and counsel an individual and alter his responses R W as to what occupation he should choose should be arrived at after incorporating goals and achievement values rather than the satisfaction values in his network. It is a common occurrence with the blind that they find a sedantary non-active existence appealing or that they would prefer to make their living by begging or music rather than labouring on land. On arriving at TACEB a positive goal can be induced and new values and needs incorporated into their network structure by providing a reinforcement in terms of an independent livelihood, financial assistance, creation of status in their own homes and among their colleagues etc. etc. The satisfaction value of tilling a field and hard labour is negative to begin with due to preconceived notions of what a blind man is fit for and capable of undertaking. Satisfaction values must therefore be made to coincide with ACHIEVABLE GOALS. Encouragement, example, knowledge of best programmes and a competitive field of activity are only some of the ways one can break a blind person who has lived many years in a sheltered home or institution into new behaviour cycles. One first allows adaptation to take place· isolates a few key responses and begins to shape these unobstrusively gently without a semblance of coersion or force. It is not enough merely to provide encouragement and teach by example. Levels of aspiration have to be induced where inspite of inimical surroundings, failure, famine, death and other hardships the blind person is able to survive and continue to work in adverse circumstances. It is here that the values and meanings and morals and asceticism of a person's ways helps in the long race of survival. Life as a whole needs to be seen in broader perspectives so that levels of aspiration can be induced into the network to motivate the man: make him go and keep going.

Goals and needs (contd.)

Dimension	Remarks
work	
social status	
prestige	
wealth	
possessions	
self sufficiency	
head of family	
acceptance	
respect	
leadership	
to live a good life	
asceticism	
to influence others	
sympathy	
to belong to	
to be wanted	
competition	
independence	
socialization	
to overcome	
to persist	
to break destiny	
to alter ways of life	
to achieve	
food	
nutrition	
nurture	
sex	
warmth and affection	
avoidance of fear	
avoidance of anxiety	
avoidance of discomfort & pain	
avoidance of anger	
provide housing and shelter	
family life	
cash to buy livelihood	
physical stimulation	
recreation	
rewards	
revaluation	
open physical surroundings - fresh air, sinlight	
freedom of expression	
need for knowle ge	
mobility	
adequacy	
capability	
good health	
satiation	
satisfaction	

Economic & Geographic inventory

Dimension	Remarks
Income	
starvation	
subsistance	
need based	
fair income	
Indebtedness	
Assets	
Climate	
rainfall	
terrain	
temperature	
floods	
drought	
epidemic	
Employment opportunities	
agricultural	
household	
industrial	
commercial	
services	
Occupational availability	
Work emigration	
Economics of cultivation	
animal husbandry	
rural crafts & trades	
Economics of marketing	
Accidents and contingencies	

DIAGNOSIS

Progress and syllabus record inventory during and on completion of training

The course of training and adjustment lasts for a minimum of one year and a maximum of two years, depending on the aptitudes of individual candidates and the actual needs of the trainee on resettlement.

Emphasis is placed on the practical aspects of agricultural training and rural crafts and trades. Whenever instruction is given, it is orally imparted and is always followed by practical demonstrations, exercises, and discussions. The syllabus has been prepared on the assumption that the blind person is not acquainted with any agricultural or rural crafts, trades, practices etc.

As all instruction is imparted orally with a minimum use of Braille, the candidate can only increase his experience by the use of his memory and the lectures, demonstrations and discussions which include the necessary amount of repetition and revision required for this purpose.

The final aim of the Training is to impart a degree of independence and self sufficiency which will enable the trainee to participate in and be of use in his own rural environment, to give him work and stabilise his outlook and attitude towards his condition.

The progress of a trainee is assessed four times during his course as he passes from batch A to B to C to D when his work is examined and his development gauged. Progress response or performance in terms of an overall expected success on resettlement is recorded at each stage as G - good, F- fair, and P- poor. This syllabus progress inventory is the record of the blind trainee through his entire training career and is built up out of a number of Task Sheets and Reports which analyse the individual performance of the trainee in each class of activity and the performance of the teacher in analysing the potential of the individual and his environment.

If a trainee reaches the standard of proficiency required, he will be given a Ceritificate A. If a trainee is not successful, or for any other reason such as ill health, does not attain the standard required, he will be given a certificate B or C. Trainees falling in the latter category, if found to be of poor aptitude during the course may not be allowed to complete the course and will be sent back to their homes.

The Syllabus is flexible and the time devoted to the various items of training mentioned above is suitably altered within limits to meet the needs of the individual.

PROGRESS AND SYLLABUS RECORD INVENTORY DURING AND ON COMPLETION OF TRAINING

NAME OF TRAINEE : _____ Course commenced :

AGE : _____ Course completed :

S. No.	ITEM	BATCH progress A	B	C	D
O.1	Motivational response to				
	Self sufficiency				
	Independent activity				
	Self help				
	Self discipline				
	Responsibility				
	Team work				
	Group therapy				
	Work with the sighted in an open environment				
	Competition with the sighted				
	Leadership and supervision of groups				
	Examinations				
	Discussions of results of progress				
	Determination for work				
	Encouragement				
	Punishment				
	Imitation				
	Example				
	Alteration				
	Security				
	Insecurity				
	Affection				
	Self expression				
	Teacher-pupil association				
	Financial assistance on completion of training				
	Financial assistance on resettlement				
	Participation in committees				
	" " cooperatives				
	" " Canteen organisations				
	" " associations				
	Debating				
	Story telling				
	Aesthetic verbal description of events experienced and objects				

S.No.	ITEM	BATCH progress A	B	C	D
	Games Hututu : wrestling : swimming : gymnastics Cards Drafts				
	Music : vocal : instrumental : orchestration				
	Dance :				
	General Knowledge				
	Pottery and plastic moulding Excursions Reading				
	Lectures and case studies and histories of successful blind individuals The psychology of adjustment of the blind and sighted Family attitudes and cooperation The collective behaviour of the community and the sighted towards the blind Chela guru relationship Denial of needs Perseverence of goals and aspirations Acceptance of limitations				
1.0.	DISCRIMINAL PROCESS ORIENTATION				
1.1	Concept and Language Formation				
	Naming total perceptual environment Sensual defining of objects/attributes Description of events and experiences Self expression and the elements of communication Cognition : association and aesthetics				
1.2	Dimensional Coordination				
	Symmetry : proximity : similarity Auditory spacetime Haptic spacetime				
1.3	Topographical Orientation				
	Sensory clues Terrain (unshod/shod) Scheme (verbal/haptic) Maze learning Obstacle (first perception/final appraisal) Balancing, veering, turning Direction towards source				

S.No.	ITEM	BATCH progress A	B	C	D
2.0	BASIC SKILLS				
2.1	Mobility				
	Following sighted guide				
	Operations with long cane and staff				
	Indoor movement - location of objects				
	Metropolitan scheme : cane travel				
	Rural scheme : cane and foot travel roads and cart tracks paths - overgrown/undergrown fields, bunds, hedges, walls				
	Independent travel by foot, vehicle, train				
	Exploration : asking for assistance				
	Safety practices				
2.2	Fitness				
	Graduated physical training designed to strengthen musculature:				
	Bends, press ups, torso rotations, running on the spot, leg raising on horizontal back, leg and head raising on horizontal stomach				
	Yogic exercises, asanas, pranayama, relaxation				
	Eradication of awkwardness, postural reflexes and other blindisms				
2.3	Major Motor Posture Training (body, legs, arms head and feet)				
	Dexterity in the use and handling of				
	pick, powra, spade, shovel, rake, gamela				
	crowbar, floor rammer, mortar and pestle, sledge hammer, mallet				
	fork cultivator, intercultivator, hoe, sickle axe, khurbi, dibbler, clipper				
	hand pump, chaffe cutter, winnower, foot pulley blocks, hoist				
	placement and climbing of ladders				

S.No.	ITEM	BATCH progress A	B	C	D
2.4	Manual dexterity Training (hands, fingers, thumbs, arms)				
	Dexterity in the use and handling of				
	ballpean hammer, claw hammer, box wrenches, open end wrenches, center punches, wedges, nail sets, screw drivers, pliers, screw extractors, bench vices, C clamps, flat chisels, cold chisels, wood files, metal files, tin snipes, bolt cutters, hand twist drills, hack saws, mitre saws, hand saws, planes, adzes, grinders, oil ground stones, nails, screws, nuts and bolts, string/wire/rope knots				
2.5	Measurement with Tools				
	Bench plate, angle plate, parallels, set squares, combination square, steel rule and tape, scribber, calipers and dividers, plump line and level, measuring tape, knotted string, string and peg, compass direction.				
2.6	Reading and Writing Elementary Braille				
	Simple arithmetic				
	Simple records of stocks				
	Account keeping				
3.0	CARPENTRY				
3.1	Wedging picks and shovels				
	Replacing farm tool handles				
	Removal of rust, cleaning and oiling				
3.2	Cutting of planks, sections, ballies, tin sheet, wire netting to size				
3.3	Joinery in 3 dimensions				
3.4	Preparation of stools, tables, hen houses, doors, windows, packing cases, charpois				

GUIDELINES TO THERAPY

20.1 The methods adopted to alter or reorganise behaviour are consequential upon the structure of events one disagnoses out of the dimensional findings of the inventories.

20.2 The reliability of the diagnosis cannot be tested. Each individual is a unique entity. The probability of an identical set of findings for any two individuals would be a rare and almost impossible occurrence.

20.3 The validity of the diagnosis can only be tested by devising means and methods to alter the structure of events. The fact that one can alter events by any method does not mean that the diagnosis is necessarily correct or vice versa. But success and continuing success is naturally a guide line. We are dealing with a frail vessel with sails. Often by merely changing the wind of events in one area of a cycle the total cycle begins to alter and evolve towards or away from the goal one has set : one watches which way the "wind" blows and tacks and turns with it.

20.4 The more directly "visible" and extant methods of altering behaviour as a means of therapy may be listed as follows :

1) Medical treatment or surgery to restore physiological or pathological and other forms of debility S_o.

2) Restoration of physical strength and stamina S_o a h S_u by the reconstitution of nutrition $S_c S_u$ and the arrest of physical and hygienic neglect. Physical exercises to strengthen the tonus of muscles, increase stamina with yogic exercises to regulate breath control, acquire poise, loosen the joints, and relax the nervous system S_o a h S_u.

3) Reduction of somatic disturbances resulting out of the Activation Syndrome tension by means of Yogic exercises as in (2) above (S o a h) (a h i r) (r S_r E R) etc.

4) i) Reducing emotional tension arising out of a lack of stimulation or a restriction of physical surroundings by increasing physical freedom and mobility i.e. $S_c S_u$ a h ie r.

ii) Restoration of physical mobility i.e. (a h ie r) (r S_r E R) (S_d E R)

5) Alteration and conditioning of the senses and the improvement of sensory utility $S_c S_u$ ie r. Arousal and stimulation of attention (i e r a).

6) Differential training in mental and sensory functions, braille, arithmetic, accounts ($S_c S_u$ i e r) (r S_r E R) (S_d E R).

7) Stabilising of the temperament :

i) by altering avoidance or escape responses and anxiety (S_d E R) ($S_p S_g$ IWR) (a h i r)(S_d E a R)

ii) by altering emotional disequilibrium, loss of control (a Rr a) (a W R r a) (a h i r)

8) Introduction of new surroundings secure from poverty, economic disability ($S_c S_u S_o$ a h) (rR $S_c S_u$ E)

9) Receiving high intensity positive reinforcement with low intensity negative reinforcement, reward, encouragement (R r S_r E).

10) Supplementing incompatible behaviour and deliberately reinforcing it while providing negative reinforcement to the behaviour to be eliminated (R r S_r E).

11) Eliminating reinforcement to extinguish unwanted behaviour. (R r $S/_r$ E).

12) Eliminating unconditioned stimuli events to extinugish behaviour stimulated by a conditioned stimuls event (S_c $S/_u$ ie h r) .

13) Providing purely negative reinforcement to instal avoidance behaviour in place of unwanted behaviour and then eliminating the unwanted behaviour (R S_rE), by 11 and 12 above.

14) Using a contagion situation to alter roles and attitudes in group therapy sessions which involve group discussions and free association and by group activity, discipline, team work, imitation, example and dynamic interaction with the sighted in day to day living situations ($S_p S_g$ I).

15) Allowing an alteration of (under guidance) free sexual attitudes and roles in non-critical non-punishing surroundings - within limits permissible for the maintenance of health ($S_d S_r$E R) ($S_p S_g$ I) (a h i r).

16) Alteration of roles and attitudes by an active or passive involvement in a Training Program by methods of differential reinforcement and successive approximations to achieve goals and needs (a h ie r) (r R S_r) ($S_p S_g$ I).

17) The instilling of aspiration cycles by the knowledge and comparison of results and continual exposure to needs and goals (S_dE R) (S_dI W).

18) The instilling of independent and thrift roles and attitudes of self care, household duties, crafts and work as an equal with the sighted in field of management of cooperatives, a shop vending etc. ($S_p S_g$IW).

19) The alteration of the roles and attitudes of family, immediate community, peers, age mates, siblings ($S_{p_g}S$ I). by the counselling of agents of change.

20) The alteration of meanings and values by the adaption of the chela guru relationship (active participation in learning and change of values instead of a passive relationship of "patient" "client" being psycho-analysed) and the subsequent attitudes of responses R to the instruction imparted ($S_{p_g}S$ I W).

21) Alteration of concept formation : preferences, morals etc. likes, dislikes, belief that in altering oneself one can alter the environment, inculcation of moral values by repetition and prayer and acts of harmlessness, abstension from incontinence, lying, stealing (R S_rE) ($S_{d_r}S$E R) (a h ie r) (S_rE R) ($S_{p_g}S$ I W).

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Progress and syllabus record inventory during and on completion of training

The course of training and adjustment lasts for a minimum of one year and a maximum of two years, depending on the aptitudes of individual candidates and the actual needs of the trainee on resettlement.

Emphasis is placed on the practical aspects of agricultural training and rural crafts and trades. Whenever instruction is given, it is orally imparted and is always followed by practical demonstrations, exercises, and discussions. The syllabus has been prepared on the assumption that the blind person is not acquainted with any agricultural or rural crafts, trades, practices etc.

As all instruction is imparted orally with a minimum use of Braille, the candidate can only increase his experience by the use of his memory and the lectures, demonstrations and discussions which include the necessary amount of repetition and revision required for this purpose.

The final aim of the Training is to impart a degree of independence and self sufficiency which will enable the trainee to participate in and be of use in his own rural environment, to give him work and stabilise his outlook and attitude towards his condition.

The progress of a trainee is assessed four times during his course as he passes from batch A to B to C to D when his work is examined and his development gauged. Progress response or performance in terms of an overall expected success on resettlement is recorded at each stage as G - good, F- fair, and P- poor. This syllabus progress inventory is the record of the blind trainee through his entire training career and is built up out of a number of Task Sheets and Reports which analyse the individual performance of the trainee in each class of activity and the performance of the teacher in analysing the potential of the individual and his environment.

If a trainee reaches the standard of proficiency required, he will be given a Ceritificate A. If a trainee is not successful, or for any other reason such as ill health, does not attain the standard required, he will be given a certificate B or C. Trainees falling in the latter category, if found to be of poor aptitude during the course may not be allowed to complete the course and will be sent back to their homes.

The Syllabus is flexible and the time devoted to the various items of training mentioned above is suitably altered within limits to meet the needs of the individual.

PROGRESS AND SYLLABUS RECORD INVENTORY DURING AND ON COMPLETION OF TRAINING

NAME OF TRAINEE : _____ Course commenced :

AGE : _____ Course completed :

S. No.	ITEM	BATCH progress A	B	C	D
0.1	Motivational response to				
	Self sufficiency				
	Independent activity				
	Self help				
	Self discipline				
	Responsibility				
	Team work				
	Group therapy				
	Work with the sighted in an open environment				
	Competition with the sighted				
	Leadership and supervision of groups				
	Examinations				
	Discussions of results of progress				
	Determination for work				
	Encouragement				
	Punishment				
	Imitation				
	Example				
	Alteration				
	Security				
	Insecurity				
	Affection				
	Self expression				
	Teacher-pupil association				
	Financial assistance on completion of training				
	Financial assistance on resettlement				
	Participation in committees				
	" " cooperatives				
	" " Canteen organisations				
	" " associations				
	Debating				
	Story telling				
	Aesthetic verbal description of events experienced and objects				

S.No.	I T E M	B A T C H progress A B C D
	Games Hututu : wrestling : swimming : gymnastics Cards Drafts	
	Music : vocal : instrumental : orchestration	
	Dance :	
	General Knowledge	
	Pottery and plastic moulding Excursions Reading	
	Lectures and case studies and histories of successful blind individuals The psychology of adjustment of the blind and sighted Family attitudes and cooperation The collective behaviour of the community and the sighted towards the blind Chela guru relationship Denial of needs Perseverence of goals and aspirations Acceptance of limitations	
1.0.	DISCRIMINAL PROCESS ORIENTATION	
1.1	Concept and Language Formation	
	Naming total perceptual environment Sensual defining of objects/attributes Description of events and experiences Self expression and the elements of communication Cognition : association and aesthetics	
1.2	Dimensional Coordination	
	Symmetry : proximity : similarity Auditory spacetime Haptic spacetime	
1.3	Topographical Orientation	
	Sensory clues Terrain (unshod/shod) Scheme (verbal/haptic) Maze learning Obstacle (first perception/final appraisal) Balancing, veering, turning Direction towards source	

S.No.	ITEM	BATCH progress A	B	C	D
2.0	BASIC SKILLS				
2.1	Mobility				
	Following sighted guide				
	Operations with long cane and staff				
	Indoor movement - location of objects				
	Metropolitan scheme : cane travel				
	Rural scheme : cane and foot travel roads and cart tracks paths - overgrown/undergrown fields, bunds, hedges, walls				
	Independent travel by foot, vehicle, train				
	Exploration : asking for assistance				
	Safety practices				
2.2	Fitness				
	Graduated physical training designed to strengthen musculature:				
	Bends, press ups, torso rotations, running on the spot, leg raising on horizontal back, leg and head raising on horizontal stomach				
	Yogic exercises, asanas, pranayama, relaxation				
	Eradication of awkwardness, postural reflexes and other blindisms				
2.3	Major Motor Posture Training (body, legs, arms head and feet)				
	Dexterity in the use and handling of				
	pick, powra, spade, shovel, rake, gamela				
	crowbar, floor rammer, mortar and pestle, sledge hammer, mallet				
	fork cultivator, intercultivator, hoe, sickle axe, khurbi, dibbler, clipper				
	hand pump, chaffe cutter, winnower, foot pulley blocks, hoist				
	placement and climbing of ladders				

S.No.	ITEM	BATCH progress A	B	C	D
2.4	Manual dexterity Training (hands, fingers, thumbs, arms)				
	Dexterity in the use and handling of				
	ballpean hammer, claw hammer, box wrenches, open end wrenches, center punches, wedges, nail sets, screw drivers, pliers, screw extractors, bench vices, C clamps, flat chisels, cold chisels, wood files, metal files, tin snipes, bolt cutters, hand twist drills, hack saws, mitre saws, hand saws, planes, adzes, grinders, oil ground stones, nails, screws, nuts and bolts, string/wire/rope knots				
2.5	Measurement with Tools				
	Bench plate, angle plate, parallels, set squares, combination square, steel rule and tape, scribber, calipers and dividers, plump line and level, measuring tape, knotted string, string and peg, compass direction.				
2.6	Reading and Writing Elementary Braille				
	Simple arithmetic				
	Simple records of stocks				
	Account keeping				
3.0	CARPENTRY				
3.1	Wedging picks and shovels				
	Replacing farm tool handles				
	Removal of rust, cleaning and oiling				
3.2	Cutting of planks, sections, ballies, tin sheet, wire netting to size				
3.3	Joinery in 3 dimensions				
3.4	Preparation of stools, tables, hen houses, doors, windows, packing cases, charpois				

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
3.50	Simple repairs to household furniture and structures				
3.60	Painting of wood and wall surfaces				
4.0	CRAFTS				
4.1	Splitting of bamboos with knife Extraction of fibre from coconut shells by soaking in water Extraction of sunn hemp and sisal fibre by soaking and running over board Carding cotton, coir and sisal				
4.2	Making mattresses from straw Making baskets and winnows of different dimensions from bamboo or cane splits Weaving hats and rain guards from kajuri palm leaves Weaving mats from kajuri palm Weaving brooms from coconut leaf veins Weaving of nivar strap Weaving of mouth gag out of coir string				
4.3	Spinning with hand spun charkha, making ropes from coir, sunn hemp and sisal Spinning with Ambar charkha Cutting and stitching handkerchiefs				
5.0	MECHANICAL OPERATIONS				
5.1	Bullock cart Animal plough Tractor				
5.2	Spray gun Bullock driven oil extractor Pump and engine Huller Grinder Rahat Mot Lever bucket				
5.3	Sewing machine Rope making machine				

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
6.0	CONSTRUCTION				
6.1	Choosing of soil for brick making, preparation of sludge				
6.2	Preparation of mud moulds for mud bricks, heaping of bricks in a kiln and stacking with coal				
6.3	String and peg preparation and layout of foundations for a hut : trenching				
6.4	Cement, motar, lime, sand mixture, Stone placement : use of trowel and plumbline				
6.5	Preparation of brick in dung plastered wall				
6.6	Shaping and fitting of bricks with a brick hammer, scutch and chisel				
6.7	Preparation of raised rammed sloping floor with dung plaster				
6.8	Insertion of posts, door frames, inlets, cross beams of bamboo or wood and construction of building frame				
6.9	Tying in of purlins and battons				
6.10	Preparation of straw or grass plaits for thatch : thatching				
6.11	Placement of tiles on battons				
7.0	HYGIENE AND GOOD HOUSEKEEPING				
7.1	Physical Hygiene				
	Cleaning mouth and teeth				
	Bathing body parts				
	Washing and shaving face				
	Oiling and combing hair				
	Toilet practice				
	Disposal of rubbish and ordure and usage as manure				
	Washing clothes with soap				
	Pressing and ironing clothes				
	Mending clothes with thread and needle				
	Arrangement of personal belongings				
	Shoe polishing				
	Hair cutting				

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
7.	Cleaning and sweeping floors Utilization of litter Dusting, disinfection by DDT, kerosene beds - mattresses - cupboards White-washing and tarring				
7.2	Recognition of Common cold and cough Influenza Fever Diarrhoea Cramp Fatigue and debility Headache Contagious diseases				
	Rest for recuperation and simple medicinal remedies				
7.3	Common Sources of Contagion and Infection Boiling of water and general cleanliness				
7.4	Simple First Aid and Use of Antiseptics Cleaning of wounds, application of medicants, tying of bandages, tourniquets, recurring care.				
7.5	The Human Body Elementary parts of the human body and their functions Elementary needs of the human body Diets and the balance of food requirements				
7.6	Household Chores Lighting of a match and the use of a matchbox Placing of small sticks on paper and covering with larger dry stocks/coal and lighting paper with matchstick to make a fire. Blowing of fire. Keeping a fire in by covering with coal ash and mud. Using a wick stove. Lighting wick. Replacing wick.				

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S.NO	ITEM	BATCH PROGRESS A	B	C	D
7.	Cleaning of kitchen vessels with water, ash, earth, soil, soap, coir or other swabs				
7.2	Boiling, cooling and straining of drinking water and storing in earthern pots				
7.3	Preparation of flour chappaties with rolling pin and board and cooking on a flat metal plate				
	Boiling or frying of rice, pulses, vegetables				
7.4	Making curd from milk by adding curd as a starter in an earthern pot				
	Making butter from curd by churning with a desi churn				
	Use of grinding stone to grind masalas, rice, wheat, chutni				
7.	Cleaning of rice, wheat, masala from stones and other extraneous particles				
	Cutting, cleaning and peeling of potatoes and vegetables				
	Recognition of cereals, pulses, masala, vegetables and other condiments used for cooking				
7.5	Lighting of lanterns, cleaning of lantern chimneys, filling kerosene in lamps, removing keresone with a pump and siphon funnel, cleaning of a wick stove				
8.0	SHOP MANAGEMENT				
8.1	Maintenance of daily commodity-wise accounts and stock sheets in brailles				
8.2	Handling of Cash : Recognition of coins, notes Safe keeping of cash in tills and in internal pockets while in transit				

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S.NO.	ITEM	BATCH PROGRESS A	B	C	D
8.3	Safety of commodities from theft : shop design				
8.4	Goods : storage of perishable and non-perishable goods travel and carraige of goods				
8.5	Supply and demand; wholesale and retail markets				
8.6	Wholesale market choice: where and how to buy				
8.7	Seasonal and other factors affecting commodity prices: when to buy				
8.8	Investment and return: inventories				
8.9	Pricing of goods for retail sale				
8.10	Credit risks; who to give credit to; limits				
8.11	Procurement of credit: whom to take credit from, investigation of background of money lender, cooperatives etc.				
8.12	Competition; how to win customer response and be a good salesman: public relations				
8.13	Direct Marketing : itinerant salesmanship planning of purchases and itineries to meet customers' requirements				
8.14	Reporting of progress and simple forecasting				
9.0	FARM MANAGEMENT				
9.1	Maintenance of accounts in simple braille of expenses and inputs/outputs in terms of labour, direct material and overheads Return per rupee Return per acre				
9.2	Maintenance of simple income/expense accounts in braille of family expenditure, loans, interest etc.				
9.3	Return on investment				
9.4	Demonstration of physical factors affecting yields : area of land holding; soil type bullocks, seed, fertilizer, FYM, green manure, pests hired labour vs own labour timely cultivation, crop rotation kharif and rabi crops				

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
9.5	General Knowledge Land tenure Marketing : credit and indebtedness Principles of agrarian legislation Tenancy Act Block development programmes Methods of applying for advice and assistance from Government departments, village panchayats, taluka and district authorities				
9.6	Reporting Progress				
10.0	FARM OPERATIONS				
10.1	Soil Work Use of string and peg in lay-out of field Division of a field into plots and area measurement Opening the soil with a pick Removal of stubble and stone, light brush and undergrowth Breaking of surface soil Breaking of clods and pulverising them Digging of pits of various dimensions Turning of soil Excavating or raising the earth for the preparation of irrigation and drainage channels Collection and spreading of farm waste, manure or fertilizer over a field Making of ridges and furrows Preparation of raised beds of varying dimensions Preparation of contour bunding to check soil erosion and conserve soil moisture Grading of soil to a slope Preparation of terraces Mulching of soil by the feet or rake and harrow Levelling Planting of cactus fence Preparation of ridge and furrow to mark the inner boundary of the fence				

S.NO.	ITEM	BATCH PROGRESS A B C D
10.1	Soil Work (Cont)	
	Digging of drains, ditches, installation of pipes and outfalls	
10.2	Identification of	
	Soil textures and types : sand, clay, murrum, silt, loam fine, coarse, tilth, cohesion, friability, heavy, light, organic material	
	Farmyard manure Nightsoil Compost Leaf mould Ammonium granular sulphate Superphosphate powder Muriate of potash Wood ash Green manure Sheep and goat manure Fish manure Urea Bone meal	
10.3	Fertilizer Practice	
	Collection of farm waste, barn litter Preparation of compost by digging a pit, layering farm waste manure, turning and watering periodically with a bamboo thermometer to tell the stage of decomposition Mixing of farm manure and fertilizer in different proportions Green manuring of fields by cutting leguminous crops and digging them into soil Broadcasting manure and mixing it with soil Ring application of manure around trees Application of manure in trenches between rows Fertilizer application in cloth bags placed at the mouth of irrigation in watering cans Foliar spray of urea	

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S.NO.	ITEM	BATCH PROGRESS A B C D

10.4 Plant Morphology

Recognition of

Seed	Seedlings
root	bulbs
stem	corms
leaf	tubers
flower	suckers
pollen	cuttings
bark	grafts
sap	guttees

10.5 Seed Treatment

Treatment of seeds etc. prior to sowing by dusting and soaking with or without chemicals

10.6 Grafting

Preparation of grafts by slicing, notching placing of twigs and buds, sealing with wax, tying with string

Layering by placing stems beneath the soil and allowing roots to form with watering

Layering by removal of bark to expose an outer layer and tying round with soil manure, gunny and string

10.7 Sowing and Transplantation

Retaining an even distribution of seed by mixing with sand or earth
Sowing beds by broadcasting or in separate rows by use of a knotted rope extended over width of field
Pulling of seedlings
Washing in water
Transplanting by making holes in single or double rows (Japanese method)
Use of seed drill in rows

10.8 Watering and Irrigation

Preparation of irrigation channels and their stabilization
Digging of shallow wells and stabilization of sides

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
10.8	Watering and Irrigation (cont)				
	Watering of seeded fields with a can or from channels. Stopping and diverting channels				
	Flooding of fields in small plots, raising bunds to hold water				
	Flooding of ring basins round the trunks of trees				
	Making ring basins round the periphery of fruit trees by tieing a coir string round the trunk and marking the periphery of the tree with pegs.				
	Transportation of water by overhead channels made by bending metal sheets into troughs and supporting these on crossed bamboos or poles				
	Estimation of irrigation given by placing a stick in a field to gauge depth of water				
10.9	Interculture				
	Stirring and loosening of soil (hoeing)				
	Weeding by feel in rows				
	Thinning of plants, removal of weak plants by estimating relative thickness and growth				
	Measuring the depth of plant roots and trimming roots of onion, garlic etc.				
	Earthing of crops such as sugar cane etc. grown in trenches so that with growth the trenches become ridges				
	Cleaning and pruning of fruit trees by removing dry, diseased, excessive branches and leaves				
	Providing support for weak stemmed plants, creepers etc. with sticks				
10.10	Insecticides				
	Recognition of insecticides, DDT, BHC etc.				
	Mixing of insecticides in different proportions				

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S.NO.	ITEM	BATCH PROGRESS A	B	C	D
10.11	Recognition of the following plant diseases				
	Mildew Leaf Spot Fruit Fall Damping of Nursery Stem Rot, Water Spot and Canker Little Leat Mosaic				
10.12	Identification of Plant Pests				
	Biting damage of leaf (holes etc.) Leaf Curl Fruit Bores Fruit fly, fruit borer Gall fly Stem borer Cut worm Pod borer Sucking insect damage followed by honey dew deposit Rodent damage				
10.13	Identification of Crop Maturity for the Purposes of Harvesting				
	Color (partial sight) By size By feeling the surfact of the fruit and leaf By tapping sound of field pods By pressing the ripe fruit By smell or taste				
10.14	Harvesting				
	Plucking of flowers, picking of fruit, cotton etc. Digging out of root crops by means of a kodali ginger onion garlic sweet potato potato yam tumeric				

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S.NO.	ITEM	BATCH PROGRESS A	B	C	D
10.14	Harvesting (cont)				
	Cutting with a khurpi or scythe Harvesting grass paddy corn cereals pulses				
	Harvesting vegetables and fruits and flowers				
10.15	Preparation of Harvested Crop				
	Threshing on a floor Beating with sticks Treading or beating on wooden boards Winnowing using a strong wind and supra or fans Washing and cleaning, drying of vegetable crops, potatoes De-husking of paddy by hand pounding Wrapping, packing of vegetables and fruits in baskets or boxes De-shelling groundnuts, oilseeds De-shelling coconuts Making straw and hay bundles Stacking and filling of barns Stacking of grain in gunny bags or barrels or pots and sealing				
11.0	POULTRY				
11.1	Recognition of Important Poultry Breeds				
	Such as Rhode Island Red White Leghorn Other locals by comb size shape, ear lobes etc.				
11.2	Morphology				
	Skeleton Digestion Respiration Excretion Reproduction Egg Production Locomotion Factors affecting egg and meat production and hatching				

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
11.3	Selection of a Healthy Fowl by the Following Symptoms				
	Alert Active Chattery Scratches for food, eats well Flies at slight disturbance Bodies well formed Firm Free from vent filth, scales, distortions and offensive odours				
11.4	Recognition of Diseased Fowls by the Following Symptoms				
	Inactive Falling off of appetite Egg production Abrasions or nodules on the comb Swollen condition of the beak or eyes Secretion from eyes and nostrils Limp neck distorted head posture Stubby neck and vent feathers (Mites) Pendulous or enlarged crop Thin body Swollen joints Enlarged or soft abdomen Hard abdomen Dirty vent (diarrhoea) Twisted or paralysed legs Shanks with scales Swelling below the feet Gasping Coughs or sneezes Weakened cry Frequent cry Squak at exertion Offensive odour				
11.5	CULLING				
	Separation of cocks, hens, pullets, chicks Catching and handling of birds Cannibalism culling Low production culling Disease culling Culling by measuring the width and feeling softness of abdomen by fingers Destruction of diseased bird by burning and burying.				

S.NO	ITEM	BATCH PROGRESS A B C D
11.6	Hatching and Brooding	
	Hatching of eggs by placing a broody hen on them and providing water, food etc. to hen. Keeping the hen on the job.	
	Hatching by use of a kerosene/water incubator	
	Placing chicks in a brooder and maintaining the warmth with straw blankets etc.	
11.7	Feeding	
	Mixing of grains, minerals, milk, eggs for chicks, pullets and full grown birds	
	The economics of food mix and the requirements of diet for production	
	Cleaning cages and houses by tarring, whitewashing and disinfecting	
	Walking with care, feet low off the ground when chicks are around	
	Watering of birds by placing a can upside down in a shallow vessel and hygienically treating water with permanganate or magnesium sulphate	
11.8	Collection of eggs from laying boxes	
	Washing	
	Grading and sorting of eggs by sizes	
	Packing eggs in earthern pots with straw or in boxes	
	Transporting eggs with care on the head in an earthenware vessel or basket	
11.9	Housing	
	Preparation and removal of run to new location by digging trench 2 ft deep, placing poles and wire net (to prevent burrowing animals getting in)	
	Making of poultry houses with bamboo sticks or wooden staves, coir, wire netting, tin, asbestos sheets or thatch so that all parts are removable for cleaning	
	Calculation of 6' width run area according to the number of birds	

S.NO.	ITEM	BATCH PROGRESS A	B	C	D
11.9	Housing (cont)				
	Deep litter management, turning and replacement, feeding, watering, cleaning and disinfection				
	Battery system management, feeding, watering, cleaning, disinfection				
	Recording the yield of eggs, chicks, and feed consumption in Braille				
12.0	ANIMAL HUSBANDRY				
12.1	Recognition of cattle, goats, sheep				
	horn hump ear dewlap other external textures and features				
12.2	Morphology				
	skeleton digestion respiration excretion reproduction lactation locomotion factors affecting milk production and calving				
12.3	Housing				
	Preparation of bamboo and thatch shed to protect animals from mid-day sun				
	Construction of simple stable with a rammed sloping floor, drain and tie posts. Construction of feeding troughs out of bricks, stones and mud				
	Scattering of litter in beds, conservation of urine and dung. Collection and removal of litter and manure				
	Cleaning and disinfection of stable and drain with kerosene/phenyl and water				
	Approaching an anumal from front or side				
	Acquainting an anumal of one's presence by speech				
	Location of position relative to animal by sound of movement, breathing, chewing and swish of tail				

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S.NO.	ITEM	BATCH PROGRESS A	B	C	D
12.3	Housing (cont)				
	Avoidance of touching sensitive parts such as fetlock, flanks, sore spots without due warning				
	Approaching shy animals for milking and feeding				
	Pasturing of cows and returning them to the sheds				
	Grooming and harnessing				
	Washing				
	Brushing				
	Massaging with oil				
12.4	Feeding				
	Feeding of calves and kids from buckets, teaching them how to eat out of hand				
	Preparing feed mix of hay, straw, green fodder, weeds, vetches, roots, concentrates, salt and other ingredients according to animal size, yield of milk and state of pregnancy				
	Cutting and storage of chaff				
12.5	Milking and Calving				
	Noting of individual habits of animals, nervous strains etc.				
	Careful milking by applying correct pressure to the udder teats. Washing udder prior to milking				
	Massaging udder to get proper milk secretion, avoiding over milking				
	Hygienic handling of milk utensil by boiling				
	Cleaning				
	Disinfection				
	Covering milk, heating of milk				
	Care at calving time by providing a clean quiet place preferably with fresh air and warmth and smooth bed for calf. Rubbing the calf for starting respiratory process				
	Siring and mating				

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S.NO.	ITEM	BATCH PROGRESS A B C D
12.6	Recognition of the Following Symptoms calling for immediate Veterinary Advice	
	Temperature of the body Secretion from mouth or anus Muscular tremors Lassitude Subcutaneous nodules Diarrhoea Cough Laboured breathing Sudden diminished appetite or yield of milk Blisters in the mouth, sores under the tongue Lameness Constipation Hot dry mouth Pendant head Scant and offensive urine Distended abdomen Hardened feaces Pregnancy (by feeling the right flank for hard lumps. When the animal drinks, the movement of the calf may be noticed) Loosening of ulva and depression near pinbone Swelling of udder and teats Vaginal discharge	
12.7	Despatching of Milk	
	Measuring the milk Recording the yield of milk and feed proportions in braille Labelling, use of pliers, seal, wire etc. for despatching milk over long distances	

GUIDELINES TO THERAPY

20.1 The methods adopted to alter or reorganise behaviour are consequential upon the structure of events one disagnoses out of the dimensional findings of the inventories.

20.2 The reliability of the diagnosis cannot be tested. Each individual is a unique entity. The probability of an identical set of findings for any two individuals would be a rare and almost impossible occurrence.

20.3 The validity of the diagnosis can only be tested by devising means and methods to alter the structure of events. The fact that one can alter events by any method does not mean that the diagnosis is necessarily correct or vice versa. But success and continuing success is naturally a guide line. We are dealing with a frail vessel with sails. Often by merely changing the wind of events in one area of a cycle the total cycle begins to alter and evolve towards or away from the goal one has set : one watches which way the "wind" blows and tacks and turns with it.

20.4 The more directly "visible" and extant methods of altering behaviour as a means of therapy may be listed as follows :

1) Medical treatment or surgery to restore physiological or pathological and other forms of debility S_o.

2) Restoration of physical strength and stamina S_o a h S_u by the reconstitution of nutrition $S_c S_u$ and the arrest of physical and hygienic neglect. Physical exercises to strengthen the tonus of muscles, increase stamina with yogic exercises to regulate breath control, acquire poise, loosen the joints, and relax the nervous system S_o a h S_u.

3) Reduction of somatic disturbances resulting out of the Activation Syndrome tension by means of Yogic exercises as in (2) above (S o a h) (a h i r) (r S_r E R) etc.

4) i) Reducing emotional tension arising out of a lack of stimulation or a restriction of physical surroundings by increasing physical freedom and mobility i.e. $S_c S_u$ a h ie r.

ii) Restoration of physical mobility i.e. (a h ie r) (r S_r E R) (S_d E R)

5) Alteration and conditioning of the senses and the improvement of sensory utility $S_c S_u$ ie r. Arousal and stimulation of attention (i e r a).

6) Differential training in mental and sensory functions, braille, arithmetic, accounts ($S_c S_u$ i e r) (r S_r E R) (S_d E R).

7) Stabilising of the temperament :

i) by altering avoidance or escape responses and anxiety (S_d E R) ($S_p S_g$ IWR) (a h i r)(S_d E a R)

ii) by altering emotional disequilibrium, loss of control (a Rr a) (a W R r a) (a h i r)

8) Introduction of new surroundings secure from poverty, economic disability ($S_c S_u S_o$ a h) (rR $S_c S_u$ E)

9) Receiving high intensity positive reinforcement with low intensity negative reinforcement, reward, encouragement (R r S_r E).

10) Supplementing incompatible behaviour and deliberately reinforcing it while providing negative reinforcement to the behaviour to be eliminated (R r S_r E).

11) Eliminating reinforcement to extinguish unwanted behaviour (R r $S/_r$ E).

12) Eliminating unconditioned stimuli events to extinugish behaviour stimulated by a conditioned stimuls event (S_c $S/_u$ ie h r) .

13) Providing purely negative reinforcement to instal avoidance behaviour in place of unwanted behaviour and then eliminating the unwanted behaviour (R S_r E), by 11 and 12 above.

14) Using a contagion situation to alter roles and attitudes in group therapy sessions which involve group discussions and free association and by group activity, discipline, team work, imitation, example and dynamic interaction with the sighted in day to day living situations ($S_p S_g$ I).

15) Allowing an alteration of (under guidance) free sexual attitudes and roles in non-critical non-punishing surroundings - within limits permissible for the maintenance of health ($S_d S_r$ E R) ($S_p S_g$ I) (a h i r).

16) Alteration of roles and attitudes by an active or passive involvement in a Training Program by methods of differential reinforcement and successive approximations to achieve goals and needs (a h ie r) (r R S_r) ($S_p S_g$ I).

17) The instilling of aspiration cycles by the knowledge and comparison of results and continual exposure to needs and goals (S_dE R) (S_dI W).

18) The instilling of independent and thrift roles and attitudes of self care, household duties, crafts and work as an equal with the sighted in field of management of cooperatives, a shop vending etc. ($S_p S_g$ IW'.

19) The alteration of the roles and attitudes of family, immediate community, peers, age mates, siblings ($S_{p_g} S I$). by the counselling of agents of change.

20) The alteration of meanings and values by the adaption of the chela guru relationship (active participation in learning and change of values instead of a passive relationship of "patient" "client" being psycho-analysed) and the subsequent attitudes of responses R to the instruction imparted ($S_{p_g} S I W$).

21) Alteration of concept formation : preferences, morals etc. likes, dislikes, belief that in altering oneself one can alter the environment, inculcation of moral values by repetition and prayer and acts of harmlessness, abstension from incontinence, lying, stealing ($R S_r E$) ($S_{d_r} S E R$) (a h ie r) ($S_r E R$) ($S_{p_g} S I W$).

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